3314E

REMOVAL OF N-NITROSODIMETHYLAMINE FROM THE OHSWEKEN (SIX NATIONS) WATER SUPPLY

FINAL REPORT

NOVEMBER 1994

Ontario

Ministry of Environment and Energy

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REMOVAL OF N-NITROSODIMETHYLAMINE FROM THE OHSWEKEN (SIX NATIONS) WATER SUPPLY

FINAL REPORT

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October 1994

FOREWORD

The Six Nations Council would sincerely like to thank Staff of the Water and Wastewater Optimization Section (formerly Drinking Water Section) of the Ontario Ministry of Environment and Energy. The technical expertise and assistance from individuals within this group has helped us deal with several drinking water quality issues including optimization and disinfection. Studies conducted by this group in 1992 and 1993 have led to a solution to the NDMA problem, enabling safe drinking water for the residents of the Village of Ohsweken.

Following some modifications to the plant treatment process and the installation of ultraviolet treatment equipment the Ohsweken water plant has been producing water with NDMA levels below detection. Although the drinking water is now safe in terms of NDMA levels and other health-related Provincial Drinking Water Objectives, some residents remain hesitant to use it for cooking and drinking. We understand that work is currently underway that is expected to help find the source of the NDMA precursors and lead to the permanent elimination of NDMA.

Six Nations Council

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SUMMARY & CONCLUSIONS

N-nitrosodimethylamine (NDMA) was initially detected in the water supply for the Village of Ohsweken in December 1989 during routine monitoring under the Ontario Ministry of Environment and Energy (MOEE) Drinking Water Surveillance Program. NDMA has since been found regularly at levels above the Ontario Interim Maximum Acceptable Concentration of 9 ng/L (9 parts per trillion). This compound has appeared in treated water particularly during winter months but has very rarely been detected in raw river water.

Laboratory studies demonstrated that this compound is formed by conventional drinking water treatment processes and is not a contaminant associated with the treatment chemicals. NDMA formation is not eliminated by alteration of the types of treatment chemicals or their points of application. Although water quality improvements were achieved by process optimization, NDMA formation could not be completely suppressed by treatments using different oxidants, coagulants, physical treatments or chlorination strategies. Ozonation was not examined as part of this work.

Ultraviolet (UV) irradiation was demonstrated to reduce NDMA to levels below detection during laboratory and pilot-scale studies. Laboratory investigations using UV irradiation on NDMA-spiked treated water from the Ohsweken plant indicated that NDMA can be reduced to non-detectable levels at an ultraviolet dosage of approximately 2.6 kWh/m^3. During pilot-scale studies UV dosages required for achieving non-detectable levels of NDMA were lower than predicted from lab work. Under realistic pilot-scale conditions, a UV dosage of 1.26 kWh/m^3 was estimated to be sufficient for NDMA destruction.

Full scale UV treatment was installed at Ohsweken in December, 1993 and has since been working successfully. Installation and testing were completed in time for the Six Nations Council to lift the 55-week-long water consumption ban before Christmas, 1993. Based on eight months of full plant-scale UV irradiation, following some minor alterations to the conventional treatment process, a single 30 kW UV unit has been consistently successful in eliminating NDMA. The 30 kW UV input treating average plant flows of 20 m^3/h translates to a UV dosage of 1.5 kWh/m^3. Capital expended by Six Nations Council for the UV unit in operation at Ohsweken was approximately $110,000 plus engineering and installation costs. Annual costs

for full-time operation of this type of unit are $10,000 to $15,000 for power and lamp replacement.

Comprehensive analysis of UV-irradiated water from Ohsweken has indicated that harmful by-products are not being formed during treatment. Additional benefits such as disinfection and the potential for destruction of other photosensitive contaminants is anticipated from UV treatment.

Reformation of NDMA after destruction by UV irradiation appears to be possible. Chlorination following UV treatment to ensure disinfection in the distribution system was suspected of causing NDMA formation. In practical applications, all treatment chemical addition should therefore occur before UV treatment. Consideration must also be given to turbidity; reduction in the UV transmittance by suspended or dissolved material will inhibit the effectiveness of this technology.

Although UV technology has been successfully implemented for NDMA destruction in Ohsweken, this can not be viewed as a permanent solution. The ultimate abatement strategy will involve the identification and elimination of the source(s) of the NDMA precursor(s). It is currently not known if this is either possible or practical. MOEE-Research Advisory Council-funded work is currently underway to assist in understanding NDMA formation dynamics with the goal of finding a more permanent solution.

INTRODUCTION & BACKGROUND

NDMA is classified by the United States Environmental Protection Agency and the International Agency for Research on Cancer as a probable human carcinogen (MOE, 1991). The Ontario Drinking Water Objective Interim Maximum Acceptable Concentration for NDMA is currently set at 9 nanograms per litre (ng/L) or 9 parts per trillion (MOEE, 1994a). Levels of NDMA between the 5 ng/L detection limit and 115 ng/L were encountered during routine monitoring of treated water from the Ohsweken water supply since monitoring began in December, 1989.

The Six Nations Band Council imposed a ban on consumption of municipal water when NDMA levels were in excess of the Provincial objective. This ban was in effect periodically throughout 1992 and for a period of 55 weeks between December 4, 1992 and December 23, 1993.

While NDMA was routinely detected in treated water during winter months or after rainfall, corresponding raw Grand River water samples taken from the water plant intake rarely yielded positive results. Although occasional positives were found, other drinking water plants drawing water from the Grand River did not experience similar trends in NDMA formation.

Following the detection of NDMA in the treated water in January 1992, an intensified monitoring program was established and the plant operation was reviewed. The ensuing study was aimed at accomplishing several tasks including; verification of sampling methods to ensure that the values reported were representative; investigation of methods of destroying NDMA or inhibiting its formation; and examination of the plant treatment process. Subsequent monitoring confirmed the frequent occurrence of NDMA throughout the Ohsweken distribution system. Simulation of plant treatment processes in the laboratory demonstrated that this compound was being formed during treatment. A Water Plant Optimization Study was initiated to address process concerns.

Studies conducted at the Ohsweken water plant and in the MOEE laboratories examined both conventional and advanced treatment techniques for eliminating or inhibiting the formation of this compound. Replacement of alum with polyaluminum chloride (PACl) and optimization of the PACl dosage and application point substantially improved the overall quality of treated water and reduced (but did not eliminate) NDMA formation.

This report summarizes lab and pilot-scale results of ultraviolet degradation of NDMA and gives details on full plant-scale UV treatment. Dosage requirements, costs and effectiveness of UV for degradation of NDMA are discussed. Previous work aimed at finding a conventional or advanced treatment solution to the recurring detection of NDMA is reported by Jobb et al (1993). Water quality information for 1993 and 1994 is presented in Appendix 2. Water quality data for Ohsweken for 1992 is contained in the 1992 DWSP Annual Report (MOEE, 1994b) and process optimization details are discussed by LeCraw (1993).

RESULTS & DISCUSSION

NDMA Analyses

Analytical work was conducted by the MOEE, Laboratory Services Branch, Mass Spectrometry Unit. The MOEE method (E3291A) using liquid-liquid extraction (with dichloromethane) followed by gas chromatography/high resolution mass spectrometry (GC/HRMS) was employed initially. Solvent extraction was replaced with liquid-solid extraction (using Ambersorb 572) followed by GC/HRMS in December 1993. The method detection limit and therefore the minimum reported concentration is 5 ng/L. For this report, values less than 5 ng/L are reported as 5 ng/L.

Mechanism of UV Photodegradation of NDMA

NDMA can not be successfully treated using air stripping or activated carbon due to its highly water soluble, polar nature. NDMA strongly absorbs UV light in a band centred around 227 nanometres and this results in breakage of the N-N bond (Edwards and Cater, 1993). One of the breakdown products, the dimethylamino radical [$(CH_3)_2$-N.] is expected to combine readily with a hydrogen radical, abstracted from a water molecule, to form dimethylamine (DMA). DMA may then, given appropriate conditions, combine with nitrite to reform NDMA. This helps to explain the observed reformation of NDMA following chlorination of UV irradiated water.

Summary of Laboratory-Scale UV Studies

Trials involving ultraviolet (UV) irradiation of samples containing NDMA resulted in a dosage-dependant reduction of NDMA levels. In the first series of tests NDMA was generated by laboratory emulation of the plant process using raw river water. The purpose of this work was to qualitatively determine the effect of UV light on NDMA. These studies involved batch treatments using a standard UV disinfection unit. Ultraviolet dosages were varied by the length of time of exposure; the longest exposure time yielded NDMA levels below detection. Details of this work are reported by Jobb et al (1993).

During a second stage of laboratory trials, NDMA reduction was quantified in terms of ultraviolet light dosage applied, expressed as kilowatt hours per cubic meter (kWh/m^3). NDMA levels were reduced from the 100 ng/L range to non-detectable (5 ng/L detection limit) at ultraviolet dosages of approximately 2.6 kWh/m^3 (10 kWh/1,000 US gal). This phase of UV work was accomplished by spiking plant treated water with NDMA at concentrations comparable to peak levels observed during monitoring. Spiking was necessary as the formation potential in the raw water had diminished; NDMA could no longer be formed from plant treatment emulation.

Summary of Pilot-Scale UV Studies

A trial of UV technology on-site at the plant was necessary to confirm NDMA destruction as lab-scale studies had been based on data generated using NDMA-spiked water. A plant-scale trial was set up using a three-lamp (3 x 10 kW) UV unit. This trial was aimed at studying the effectiveness of UV irradiation on actual in-plant NDMA formation. Additional UV technologies, using a titanium dioxide (TiO_2) catalyst, and hydrogen peroxide were also examined.

The effectiveness of hydrogen peroxide (H_2O_2), used to enhance the oxidation capabilities of the UV, was not conclusively determined from this work. There was some indication that peroxide alone (in the absence of UV light) yielded a reduction in NDMA levels. Runs employing both UV and H_2O_2 were at least as effective as UV alone in destroying NDMA. Hydrogen peroxide was not exhaustively investigated as it interferes with chlorination and may compromise

disinfection. The UV-TiO_2 equipment used during these studies did not consistently destroy NDMA.

Results of this pilot work indicated that UV was successful at significantly reducing NDMA concentrations. NDMA levels at or below the 5 ng/L method detection limit were reached in all pilot runs using UV alone. A UV dosage of 1.26 kWh/m^3 was effective in reducing NDMA to non-detectable levels; this was approximately half the dosage observed during lab-scale studies. This information was helpful in determining equipment requirements for full plant-scale UV treatment at the facility (Jobb et al, 1993).

From the results of this pilot-scale work, a single 30 kW UV unit was expected to be sufficient for destruction of NDMA at the levels observed. Maximum NDMA levels observed during pilot work were similar to those detected during the treated water monitoring program.

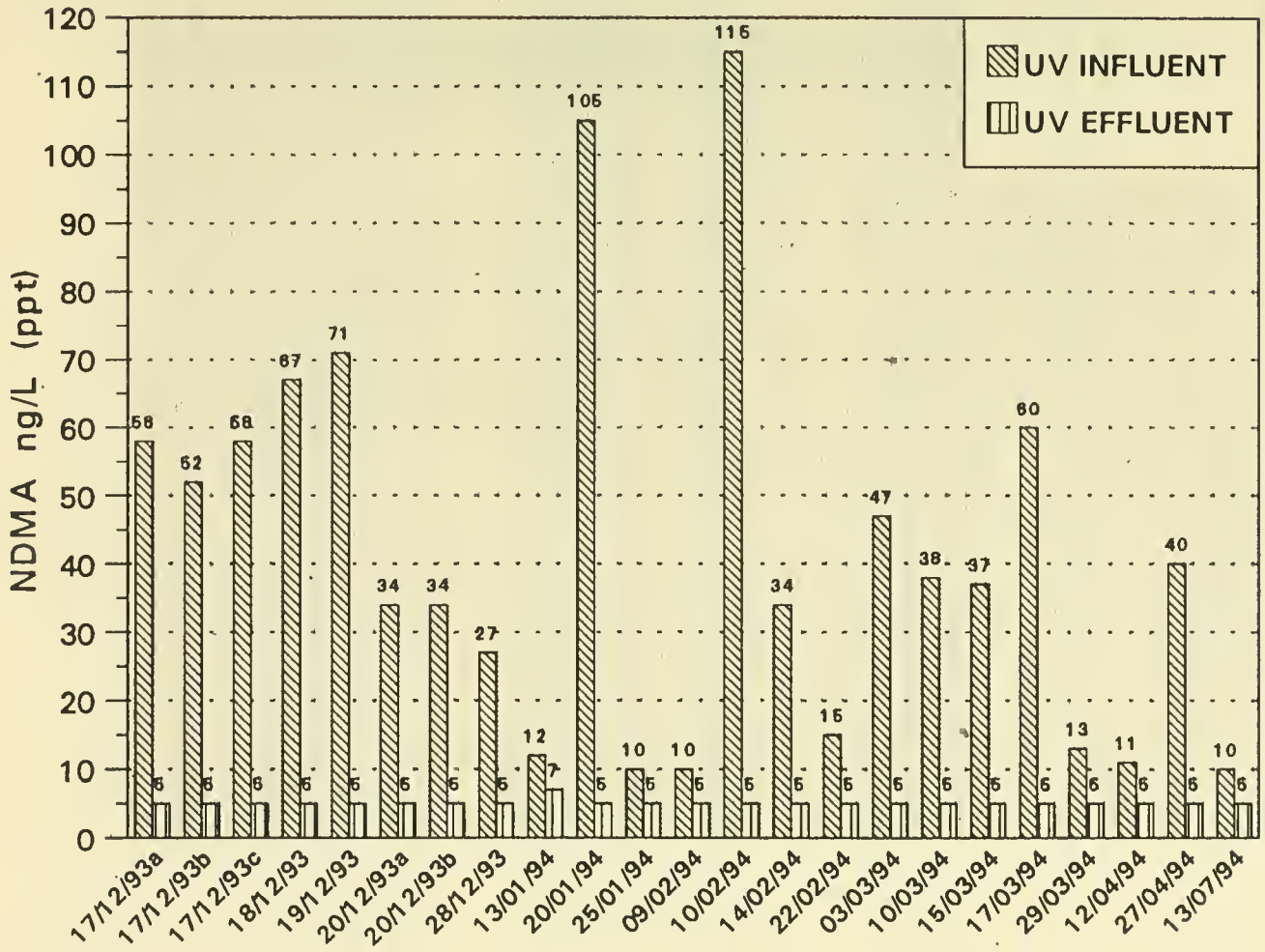
Plant-scale UV Studies

A single lamp 30 kW UV unit was installed between the dual media filters and the clearwell (as illustrated in Appendix 1, Figure A1-1) in mid-December 1993. Capital cost was $110,000 plus engineering and installation (LeCraw, 1993). Operating and maintenance costs for this type of unit are expected to be approximately $10,000 to $15,000 per year for power and lamp replacement, based on twenty-four hour per day operation. At typical plant flows of 20 m^3/h, the UV dosage was 1.5 kWh/m^3. Full plant-scale operation of the unit began on December 17, 1993.

Figure 1 summarizes the positive results of NDMA analyses before and after UV treatment, between the installation of the UV equipment on December 17, 1993 and August 31, 1994. These results represent samples taken before (UV influent) and after (UV effluent) the UV treatment when NDMA concentrations in the UV influent were greater than or equal to 10 ng/L. Of a total of 61 sets of samples, 23 had influent NDMA levels between 10 ng/L and 115 ng/L. NDMA was reduced to the 5 ng/L detection limit in 22 of the 23 UV effluent samples. The exception was a sample taken on January 13 1994, in which 7 ng/L was reported.

Figure 1. NDMA Photodegradation Dec '93 - Aug '94

Method Detection Limit = 5 ng/L; results < 5 reported as 5 ng/L



All results of NDMA analyses conducted between May 25, 1993 and August 31, 1994 can be found in Appendix 1 (Table A1-1 and Figures A1-2 to A1-16). Figure A1-1 of Appendix 1 represents the Ohsweken water treatment system, showing sampling locations. Information prior to May 25, 1993 is contained in an Interim report by Jobb et al (1993).

The December 16 sampling date in Figure A1-8 represents the initial run of the UV treatment unit. On several occasions when NDMA was not detected in UV effluent samples, NDMA appeared in the 5 to 30 ng/L range in distribution system samples and at the Emily C. School located several kilometres from town. The detection of NDMA in distribution samples was attributed mainly to the addition of chlorine after UV treatment. Chlorine (sodium hypochlorite) was added at the plant following UV treatment and was boosted again at the school to supplement chlorine that was lost during the transport of the water.

The post-treatment chlorine injection at the plant was relocated to a point before the UV treatment on February 14, 1994. From Figure A1-11 in Appendix 1, this change in chlorination strategy virtually eliminated the detection of NDMA in distribution system samples, except for the Emily C. School. Chlorination at the school was discontinued in mid April, 1994 and a point-of-entry UV disinfection unit was installed. NDMA was not detected in distribution samples at levels above the 9 ng/L Objective after these modifications were made.

From this work, the reformation of NDMA after destruction by UV irradiation appears possible. Previous studies were conducted to examine reformation; NDMA did not reform during storage following UV treatment. However, post-UV treatment chlorination appears to cause NDMA reformation. This is consistent with, and can be explained by the mechanism of NDMA destruction by UV.

The detection in raw water of dimethylamine (DMA), a known NDMA precursor has been confirmed and is believed to be largely responsible for NDMA formation. Meresz, 1994 has proposed a method for low-level detection of DMA; studies to examine NDMA/DMA interactions are currently underway.

Finished Water Quality

In addition to NDMA, other water quality parameters were examined during the plant-scale study. The Drinking Water Surveillance Program (DWSP) involved analysis of raw and treated water samples for a comprehensive set of health-related and aesthetic drinking water quality parameters included in the Ontario Drinking Water Objectives. DWSP samples were collected at the time of UV studies; analytical results for these samples taken during 1993 and the first half of 1994 are presented in Appendix 2.

Generally, the Ohsweken plant was producing acceptable quality water throughout 1994, following the elimination of NDMA by UV treatment. Finished water turbidities were very low, which is generally indicative of acceptable physical treatment.

The Grand River is subject to rapid increases in turbidity over very short periods of time. This makes coagulant dosage optimization difficult as raw water changes can occur more quickly than manual dosage adjustments can be made. The inability to respond to these changes was evident by high turbidities on several occasions in 1993. Elevated residual aluminum levels generally accompany the high turbidities which indicates aluminum precipitation after filtration and suggests an overdose of coagulant. Automatic coagulant dosage control equipment has been recommended for this operation and is currently being investigated.

Open characterization mass spectrometry scans were also conducted on UV-irradiated water. These scans, which are used to examine water samples for a very broad range of low level contaminants, are responsible for the original detection of NDMA. Open characterization analyses were intended to identify any unusual by-products that may have been produced by ultraviolet irradiation. Based on the results of open characterization scans, there were no harmful compounds detected resulting from UV irradiation of the water.

ACKNOWLEDGEMENTS

Due to the large number of people who have assisted with various aspects of this study, it is impossible to thank everyone. Significant input into this study is acknowledged from the Staff of Environment Canada, Emergencies Engineering Division and the Six Nations Public Works Department (Linda Ense, Duff Davis, Morley Johnson and Kevin Doolittle). Dr. Ken Roberts of the MOEE has lent valuable guidance to the direction of these studies. Heather Broomer and Patrick Cheung of the MOEE have greatly assisted in the preparation of this document. Bob LeCraw of RAL Engineering has provided engineering assistance; Steve Cater and Doug Reed of Solarchem Environmental Systems have assisted with technical aspects of UV treatment. The residents of the Village of Ohsweken must also be recognized for their patience during the study period.

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APPENDIX 1

FIGURE A1-1: OHSWEKEN WATER TREATMENT SYSTEM AND SAMPLING LOCATIONS

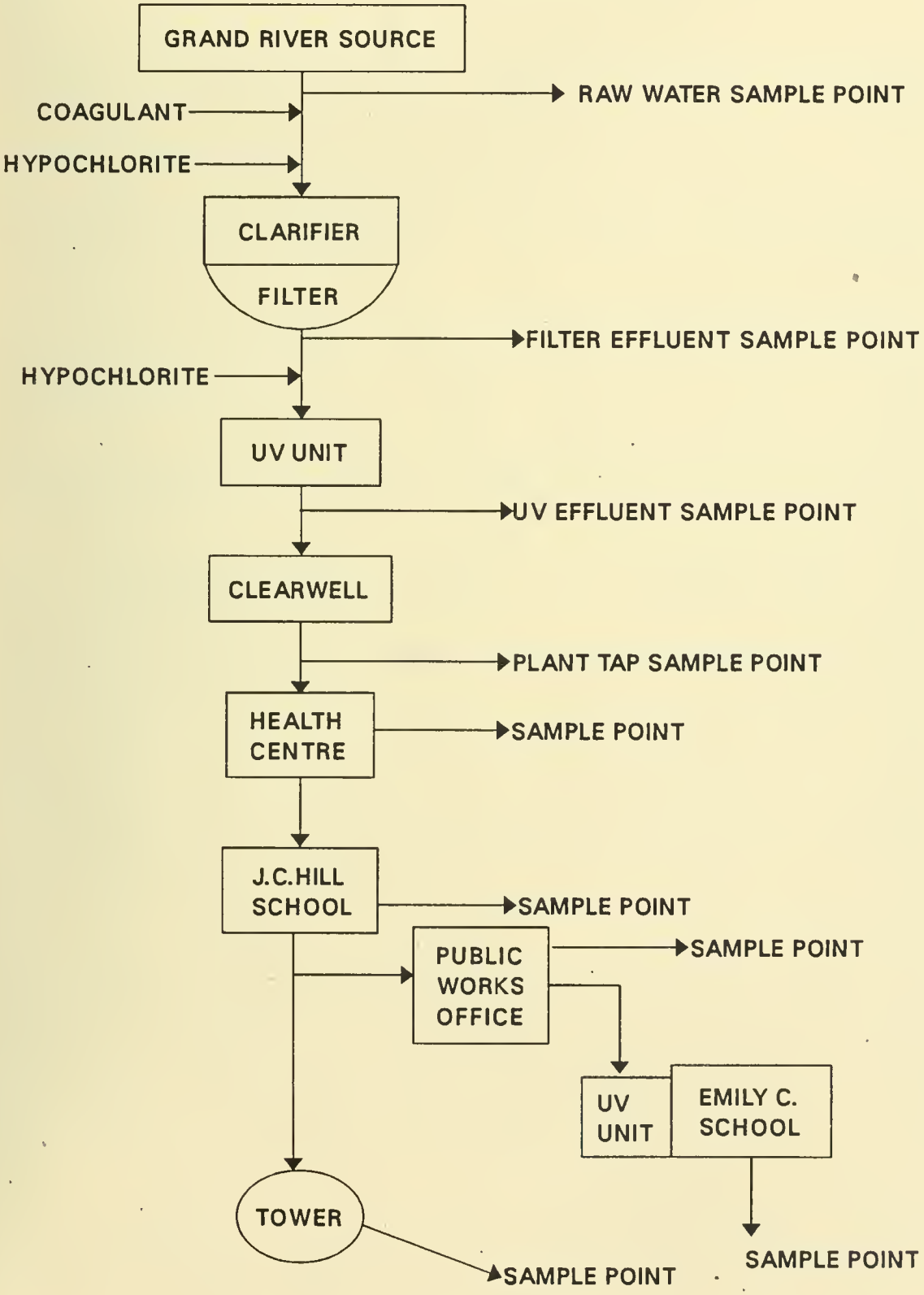


TABLE A1-1: OHSWEKEN NDMA RESULTS

DATE	PLANT TAP	FILTER EFFLUENT	UV EFFLUENT	HEALTH CENTRE	PUBLIC WORKS	JC HILL SCHOOL	EMILY C SCHOOL	TOWER
MAY 25, 1993	ND				ND	ND		ND
27	ND			ND		ND	ND	
JUNE 1	.007				ND	.006		ND
3	.010			.005			ND	ND
8	.025				ND	.037		ND
10	.024			ND			ND	ND
18	ND				ND	.005		.005
22	.037			.011	.005			.009
24	.033					.016	ND	.011
29	.011			.013	.016			.013
JULY 6	ND			ND	.014			.010
8	ND					.009	ND	.007
15	.007					.007	.014	ND
20	ND			ND	ND			ND
22	ND				ND	ND	.009	
27	.006			.006	ND			ND
29	.013					ND	ND	ND
AUGUST 3	ND			.006	ND			.006
5	ND				ND	.005		.005
10	ND			ND	.006			ND
12	ND				ND	ND		ND
17	ND			ND	ND			ND

TABLE A1-1: OHSWEKEN NDMA RESULTS

DATE	PLANT TAP	FILTER EFFLUENT	UV EFFLUENT	HEALTH CENTRE	PUBLIC WORKS	JC HILL SCHOOL	EMILY C SCHOOL	TOWER
19	ND					ND	ND	ND
24	.005			.007	ND			ND
26						ND	ND	ND
SEPTEMBER 1	.006			ND	ND			ND
2	ND					ND	ND	ND
7	.040			.029	ND			.007
9	.016					.014	ND	.010
14	ND			ND	.007			.008
16	ND					.009	ND	.008
21	ND			ND	.005			.007
28	.006			.007	ND			ND
23	ND					.006	.006	.005
OCTOBER 5	ND							.006
12	ND							ND
19	ND							ND
NOVEMBER 2	ND							ND
9	ND							ND
16	ND							ND
23	ND							ND
30	ND							ND
DECEMBER 7	.049							.027
14	ND							.023

TABLE A1-1: OHSWEKEN NDMA RESULTS

DATE	PLANT TAP	FILTER EFFLUENT	UV EFFLUENT	HEALTH CENTRE	PUBLIC WORKS	JC HILL SCHOOL	EMILY C SCHOOL	TOWER
16	ND	.051						
17a		.058	ND					
17b		.052	ND					
17C		.058	ND					
18		.067	ND					
19		.071	ND					
20a		.034	ND					
20b		.034	ND					
21a	ND	ND	ND					.021
21b	ND	ND	ND					
23	ND	.005	ND	ND				
28	ND	.027	ND					.015
JANUARY 4,1994	ND	ND	ND	.005				
10	ND	ND	ND	ND				ND
13	.006	.012	.007	.009				.008
18	ND	.005	ND	ND				ND
20	ND	.105	ND	.007				.009
25	ND	.010	ND	.021				.009
27	ND	ND	ND	ND				.007
FEBRUARY 2	ND	.006	ND	.007				.009
3	ND	.006	ND	ND				.010
9	.006	.010	ND	.006				ND

TABLE A1-1: OHSWEKEN NDMA RESULTS

DATE	PLANT TAP	FILTER EFFLUENT	UV EFFLUENT	HEALTH CENTRE	PUBLIC WORKS	JC HILL SCHOOL	EMILY C SCHOOL	TOWER
10	ND	.115	ND	ND				ND
14	ND	.034	ND	ND				ND
17	ND	ND	ND	ND				ND
22	ND	.015	ND	ND				
24	ND	.007	ND	ND				.006
MARCH 1	ND	.005	ND	ND				ND
3	ND	.047	ND	ND				ND
8	ND			ND				ND
10	ND	.038	ND				.052	ND
15	ND	.037	ND	ND				ND
17	ND	.060	ND				ND	.006
24	ND	ND	ND				.017	.008
29	ND	.013	ND				.016	ND
31	ND	ND	ND				.033	ND
APRIL 5	ND	ND	ND				.014	ND
7	ND	.005	ND				.009	ND
12	ND	.011	ND				ND	ND
14	ND	ND	ND				ND	ND
19	ND	ND	ND				ND	ND
22	ND	ND	ND				ND	ND
25	ND	ND	ND				ND	ND
27	ND	.040	ND				ND	ND

TABLE A1-1: OHSWEKEN NDMA RESULTS

DATE	PLANT TAP	FILTER EFFLUENT	UV EFFLUENT	HEALTH CENTRE	PUBLIC WORKS	JC HILL SCHOOL	EMILY C SCHOOL	TOWER
MAY 5	ND	ND	ND				ND	ND
13	ND	ND	ND				ND	ND
18	ND	ND	ND				ND	ND
25	ND	ND	ND				ND	ND
JUNE 1	ND	ND	ND				ND	ND
8	ND	ND	ND				ND	ND
15	ND	ND	ND				ND	ND
22	ND	ND	ND				ND	ND
29	ND	ND	ND				ND	ND
JULY 6	ND	ND	ND					
13	ND	.013	ND				ND	ND
20	ND	ND	ND				ND	ND
27	ND	ND	ND				ND	ND
AUGUST 3	ND	ND	ND				ND	ND
10	ND	ND	ND				ND	
17	ND	ND	ND				ND	ND
24	ND	ND	ND				ND	ND
31	ND	.009	ND				ND	ND

FIGURE A1-2: OHSWEKEN WATER SUPPLY
NDMA ANALYSIS 1993

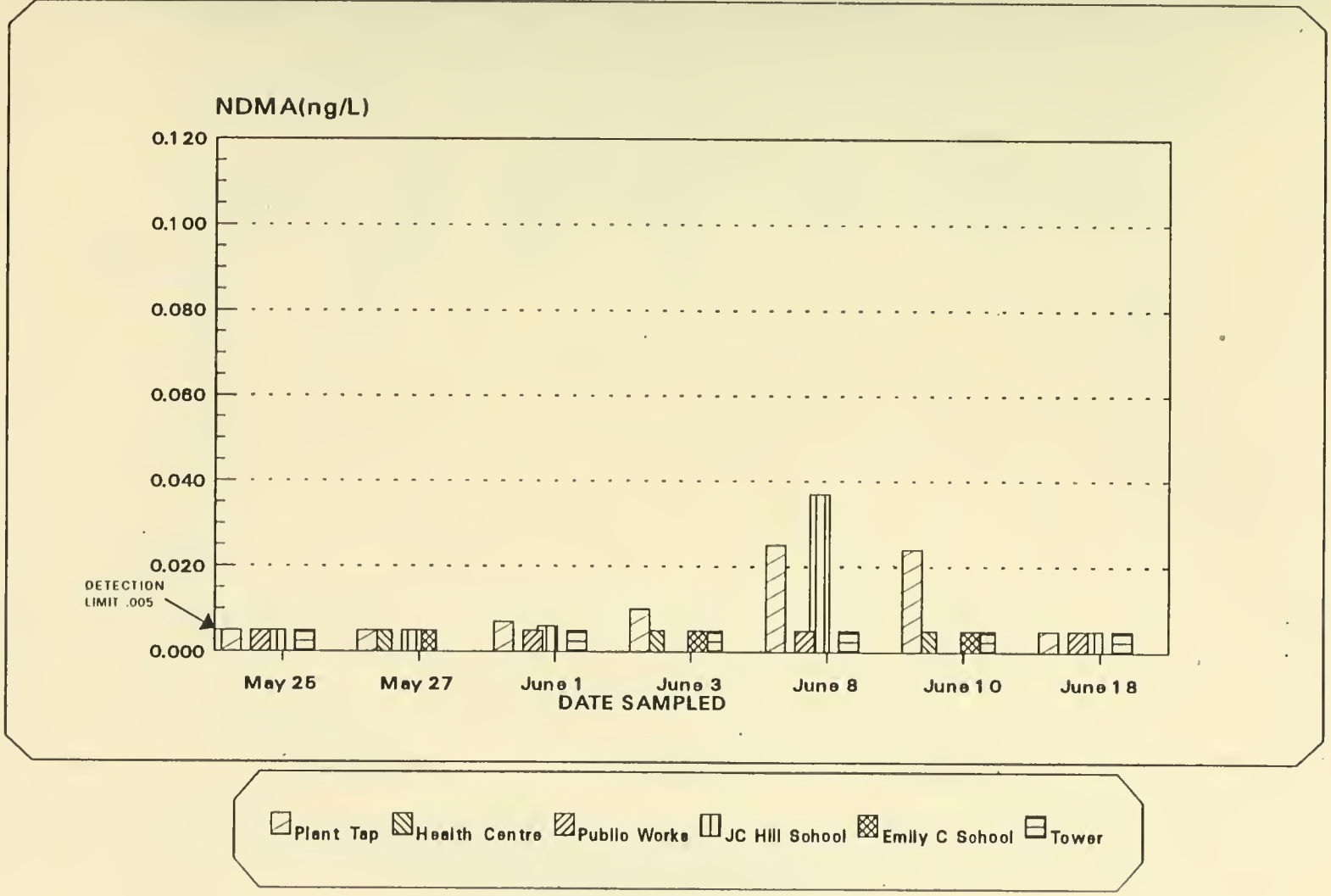


FIGURE A1-3: OHSWEKEN WATER SUPPLY
NDMA ANALYSIS 1993

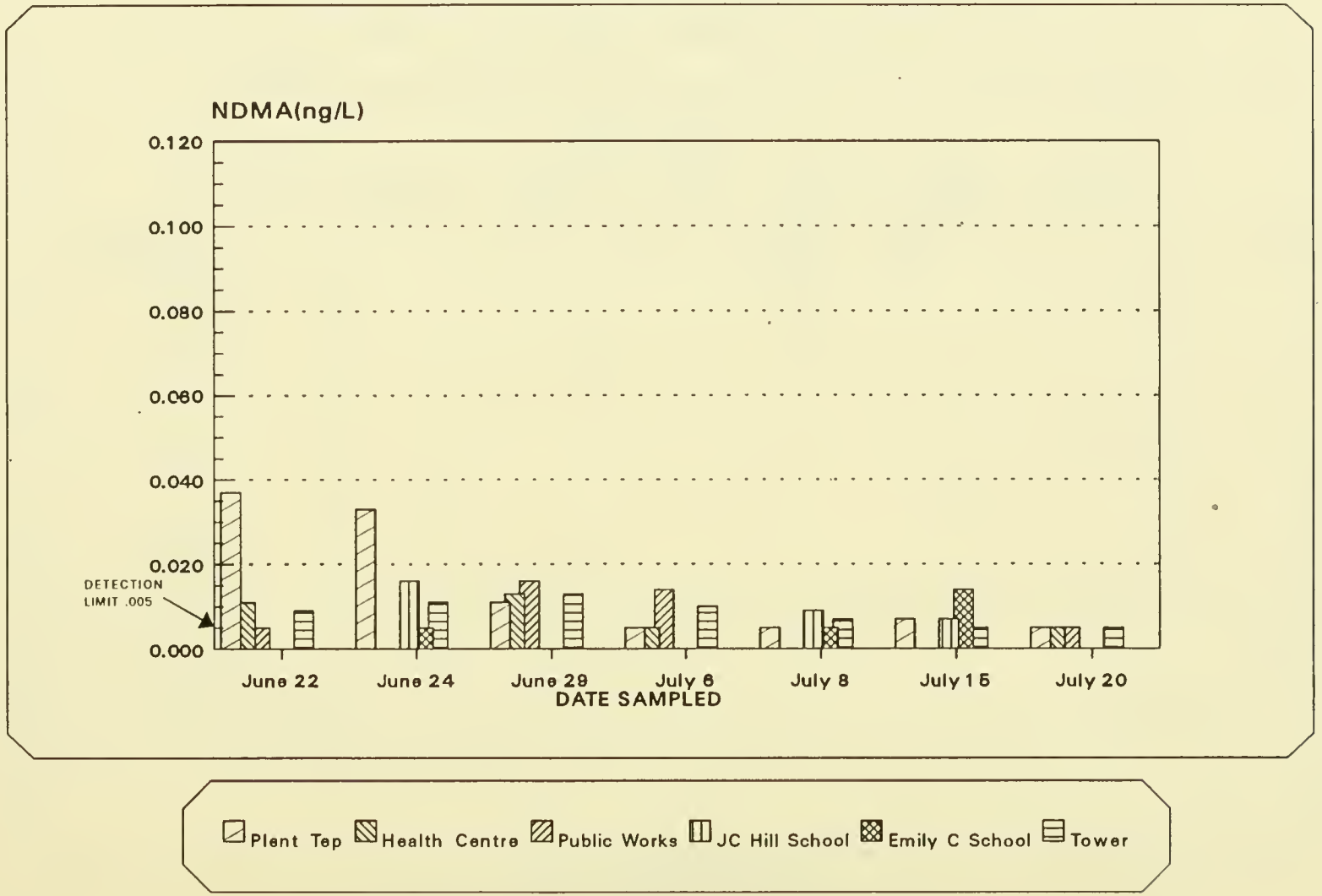


FIGURE A1-4: OHSWEKEN WATER SUPPLY
NDMA ANALYSIS 1993

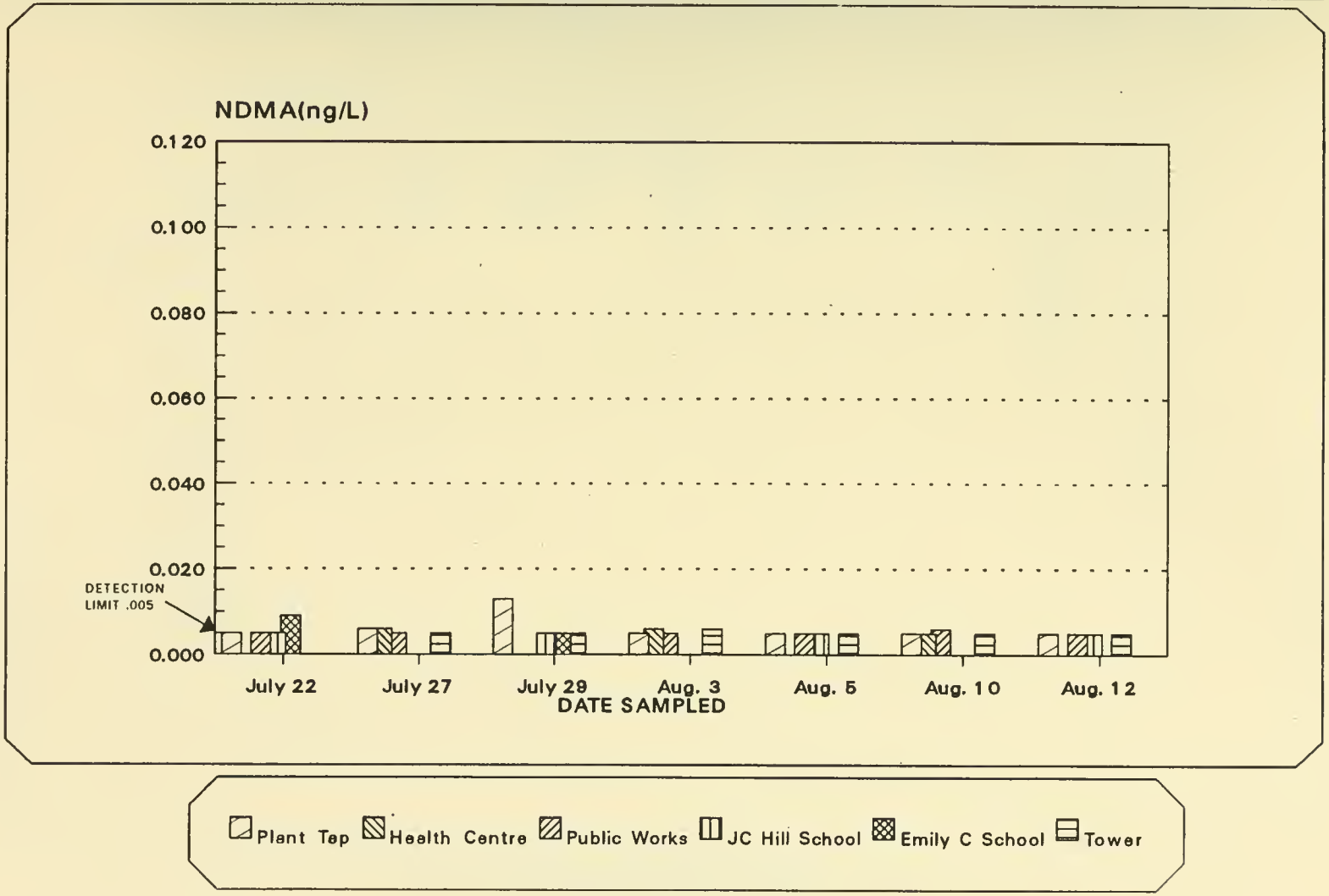


FIGURE A1-5: OHSWEKEN WATER SUPPLY
NDMA ANALYSIS 1993

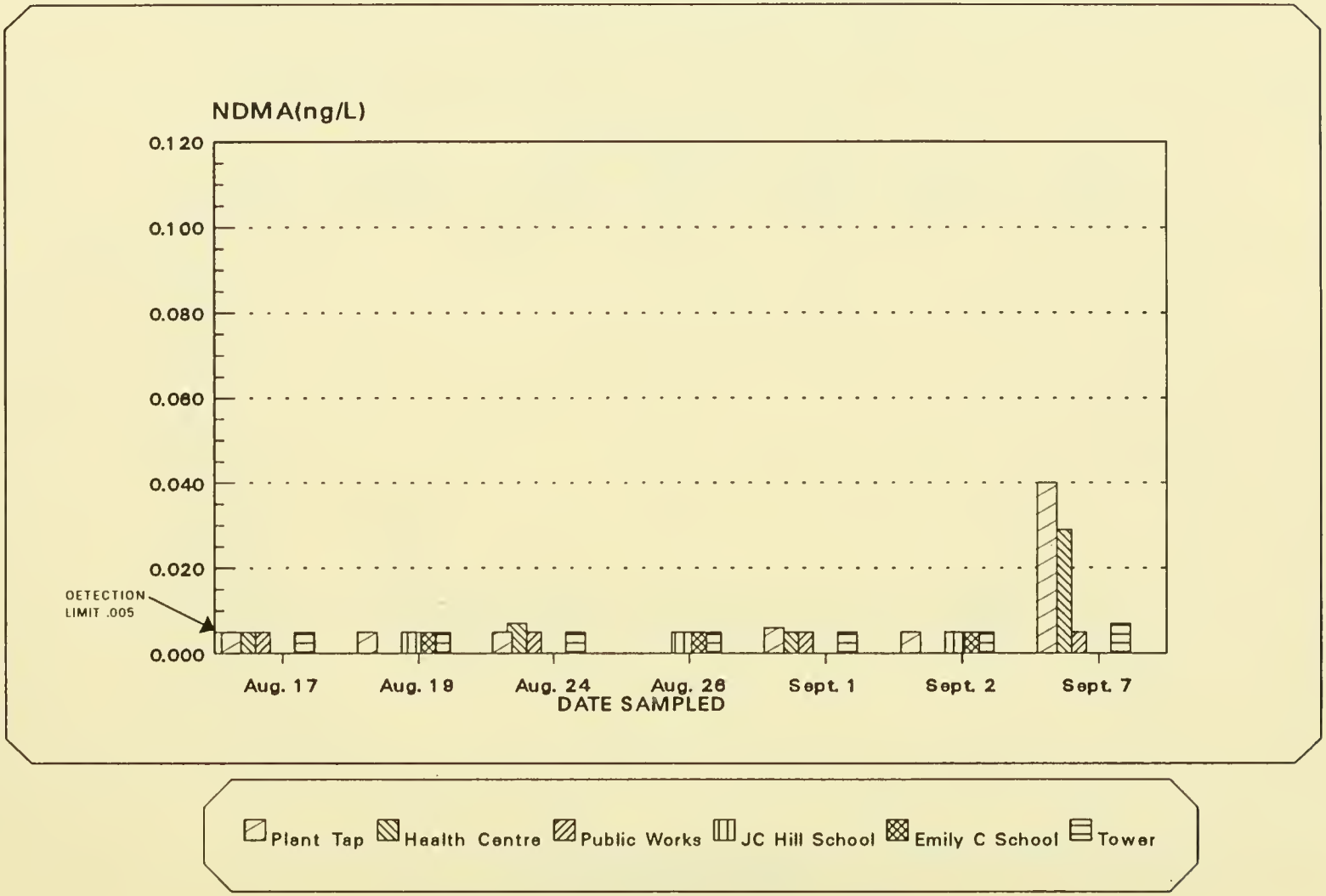


FIGURE A1-6: OHSWEKEN WATER SUPPLY
NDMA ANALYSIS 1993

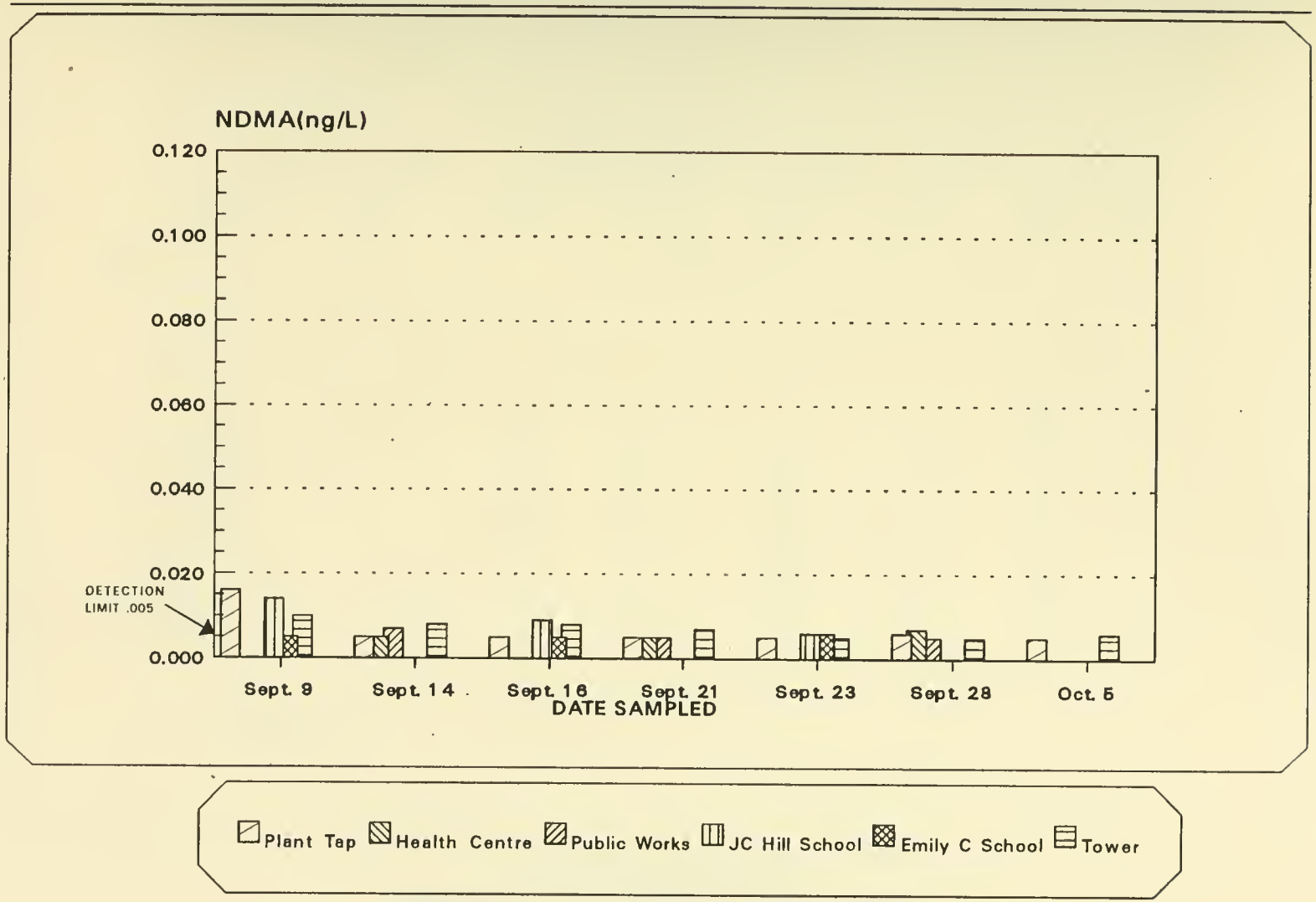


FIGURE A1-7: OHSWEKEN WATER SUPPLY
NDMA ANALYSIS 1993

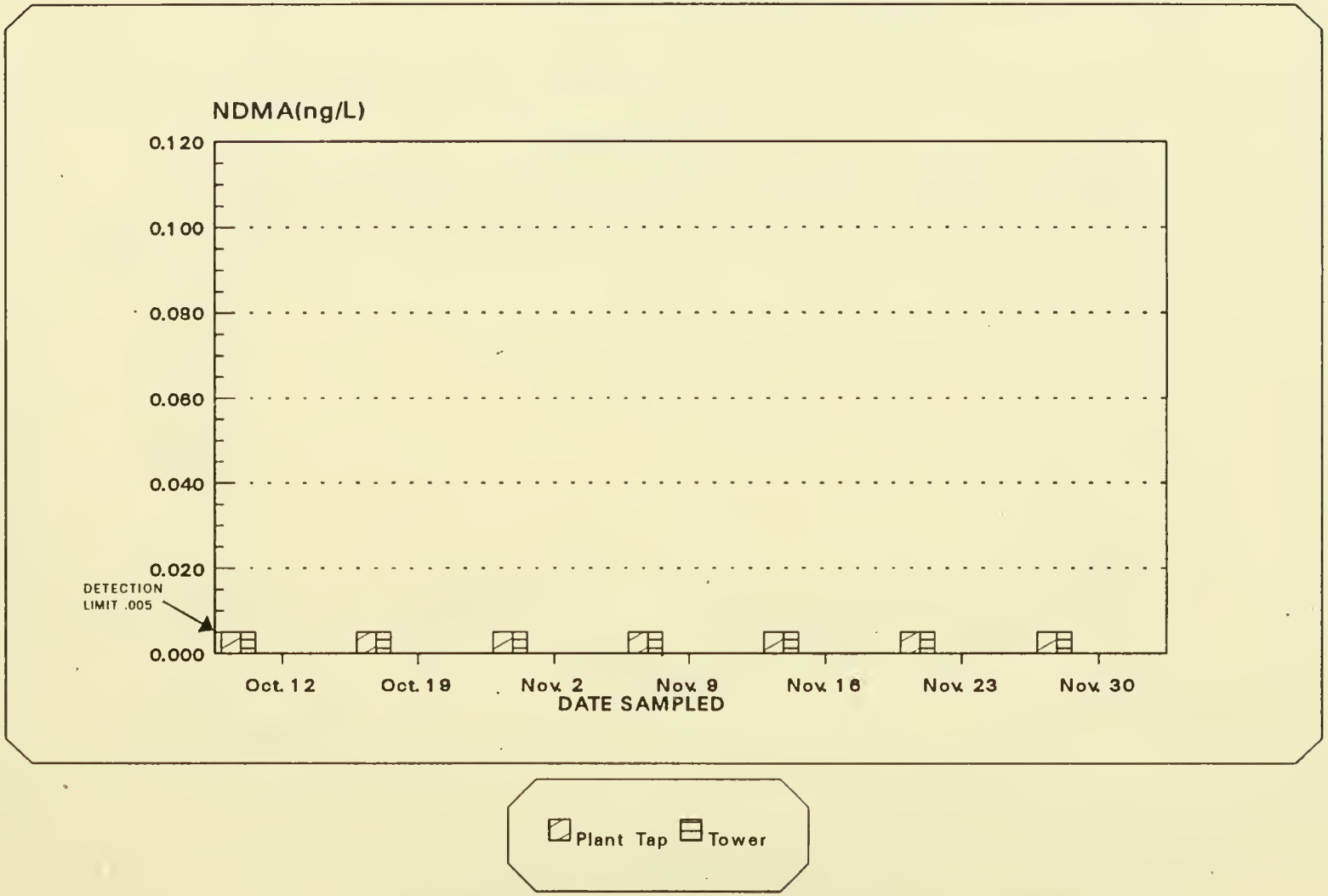


FIGURE A1-8: OHSWEKEN WATER SUPPLY
NDMA ANALYSIS 1993

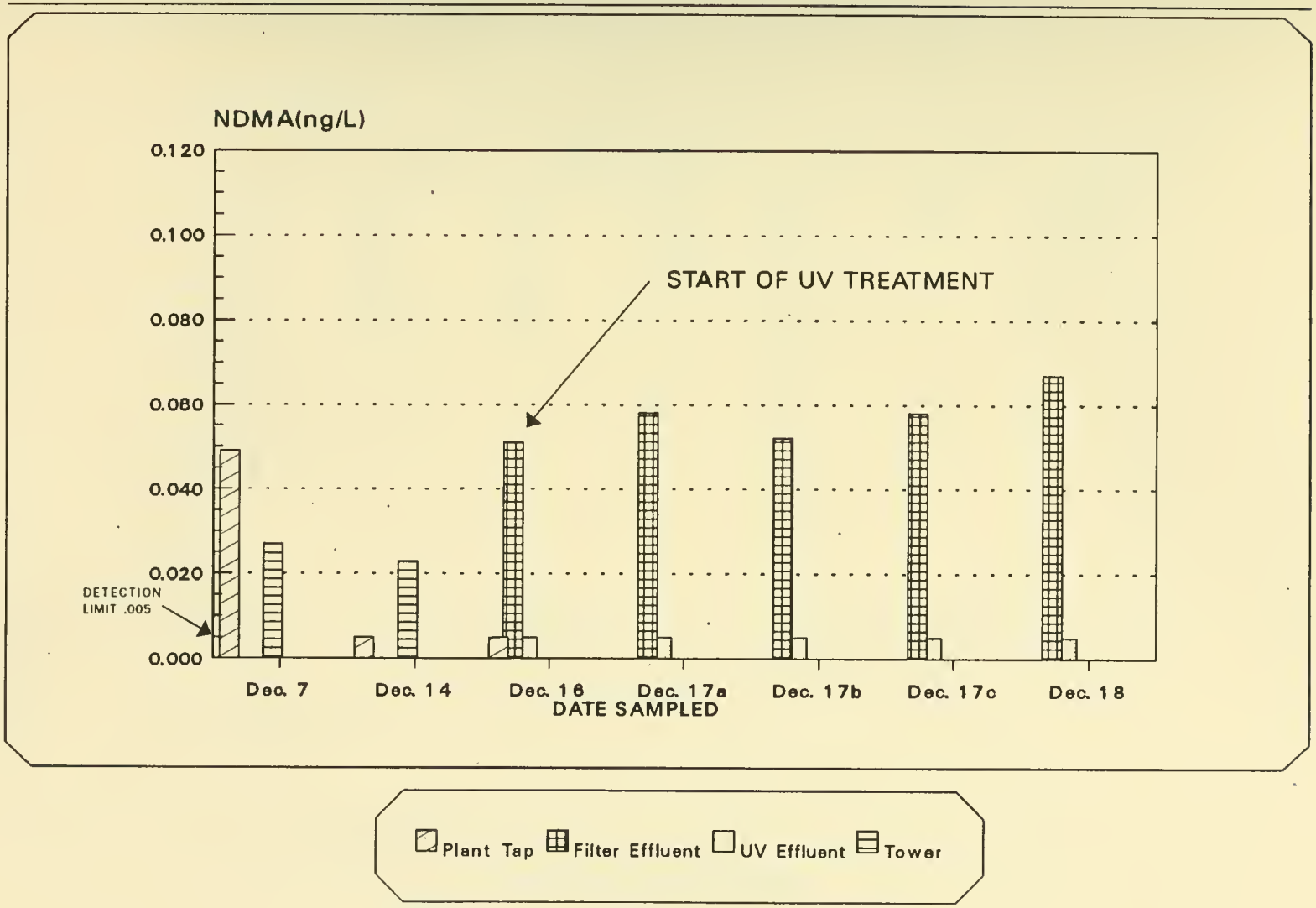


FIGURE A1-9: OHSWEKEN WATER SUPPLY
NDMA ANALYSIS 1993

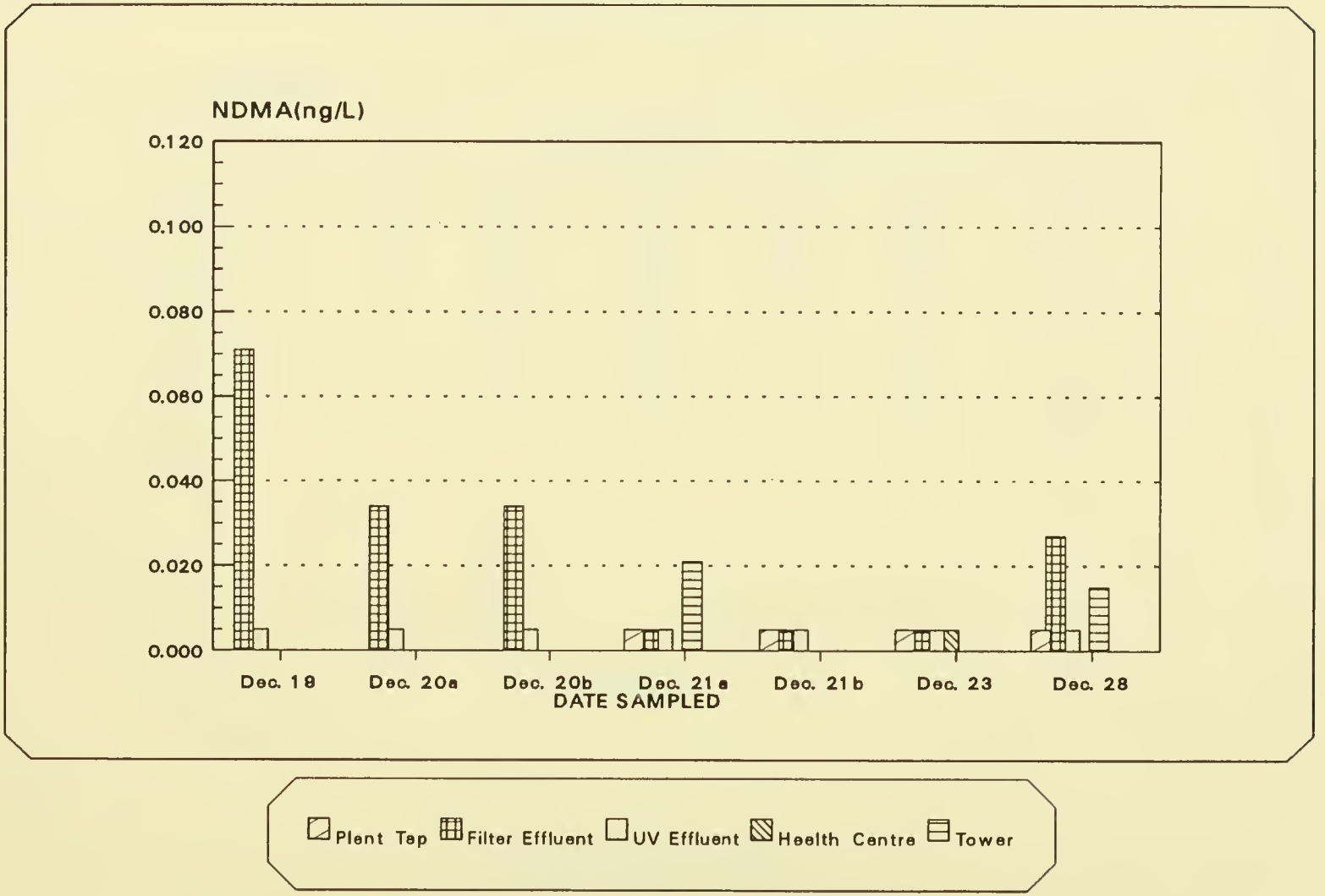


FIGURE A1-10: OHSWEKEN WATER SUPPLY
NDMA ANALYSIS 1994

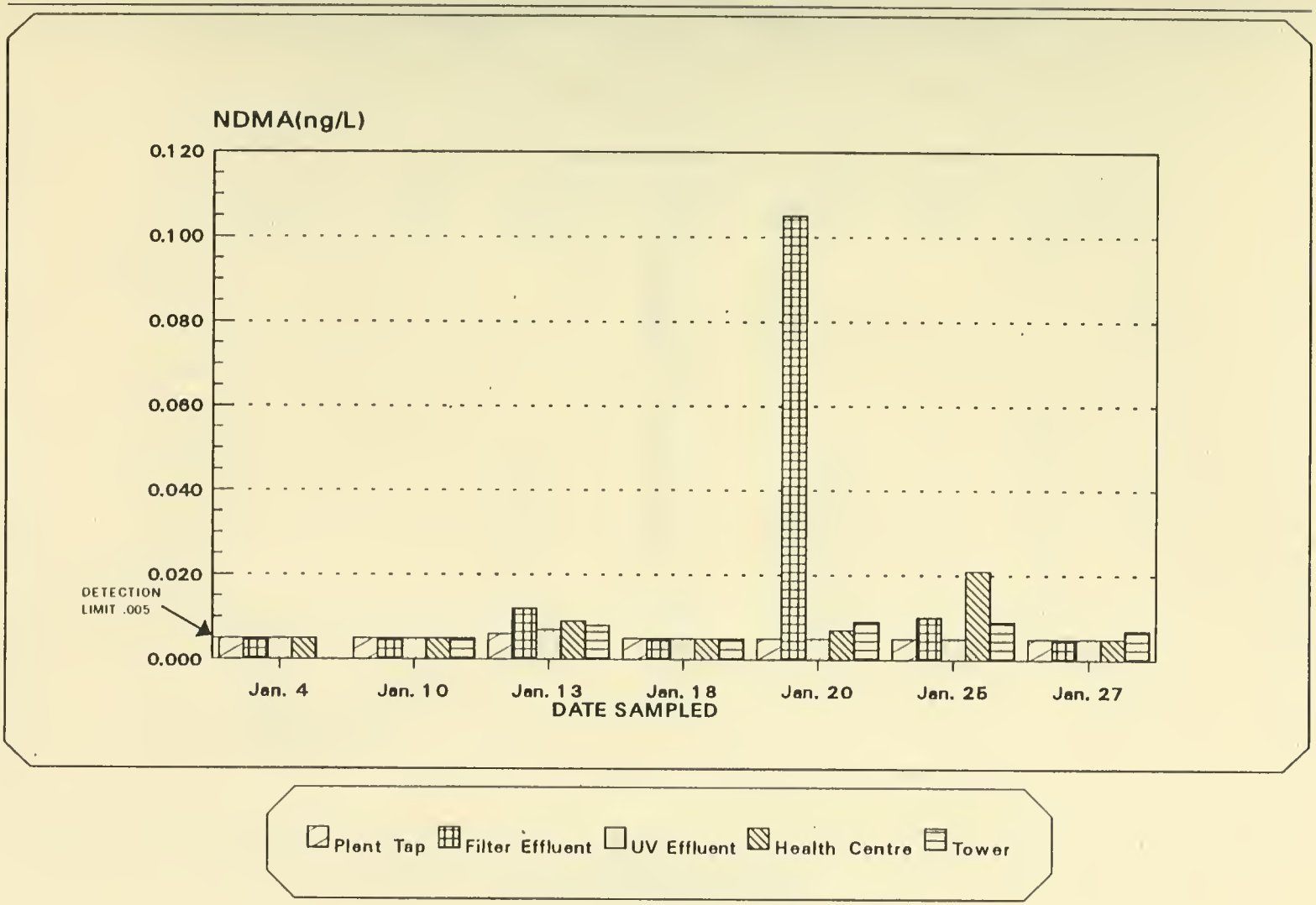


FIGURE A1-11: OHSWEKEN WATER SUPPLY
NDMA ANALYSIS 1994

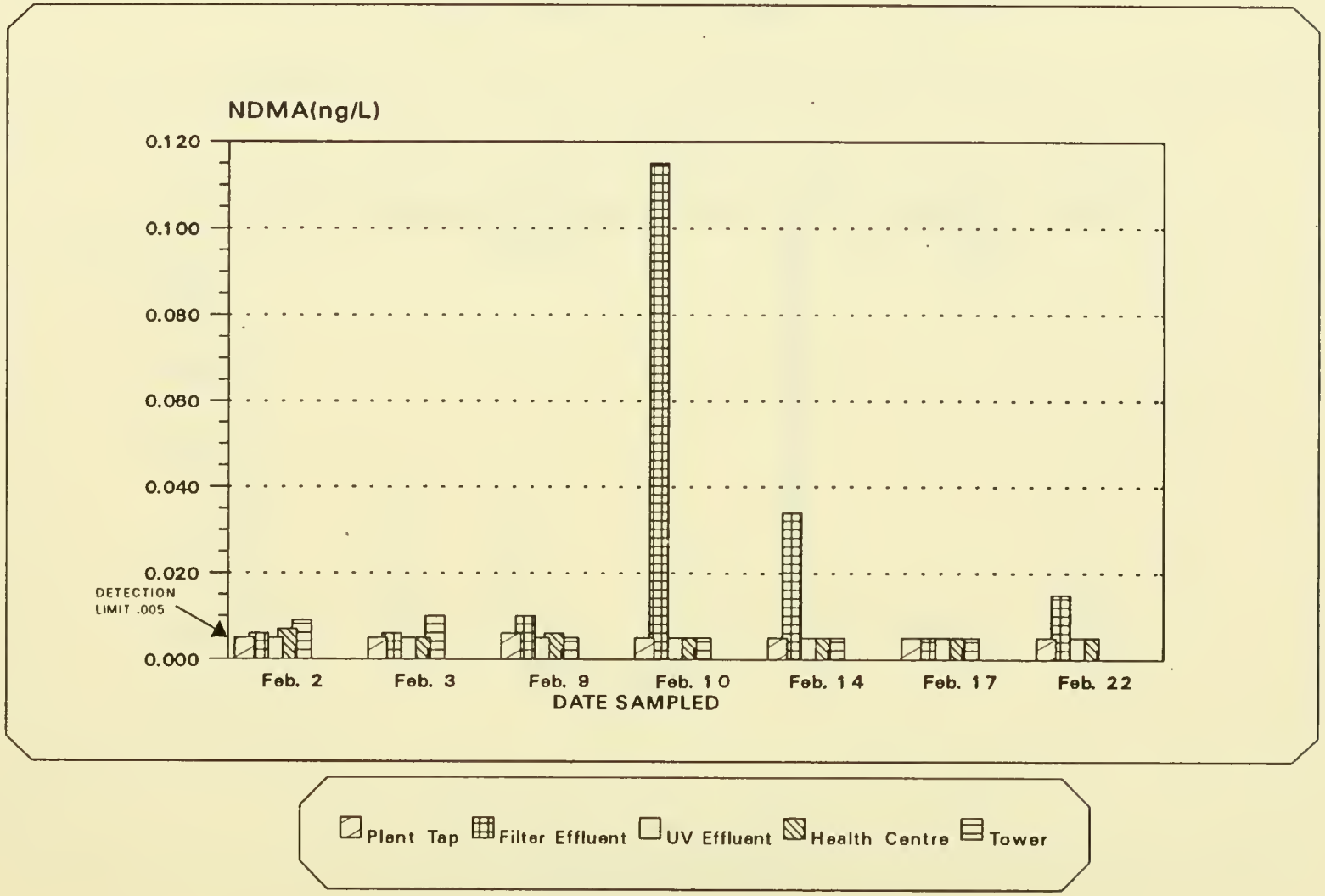


FIGURE A1-12: OHSWEKEN WATER SUPPLY
NDMA ANALYSIS 1994

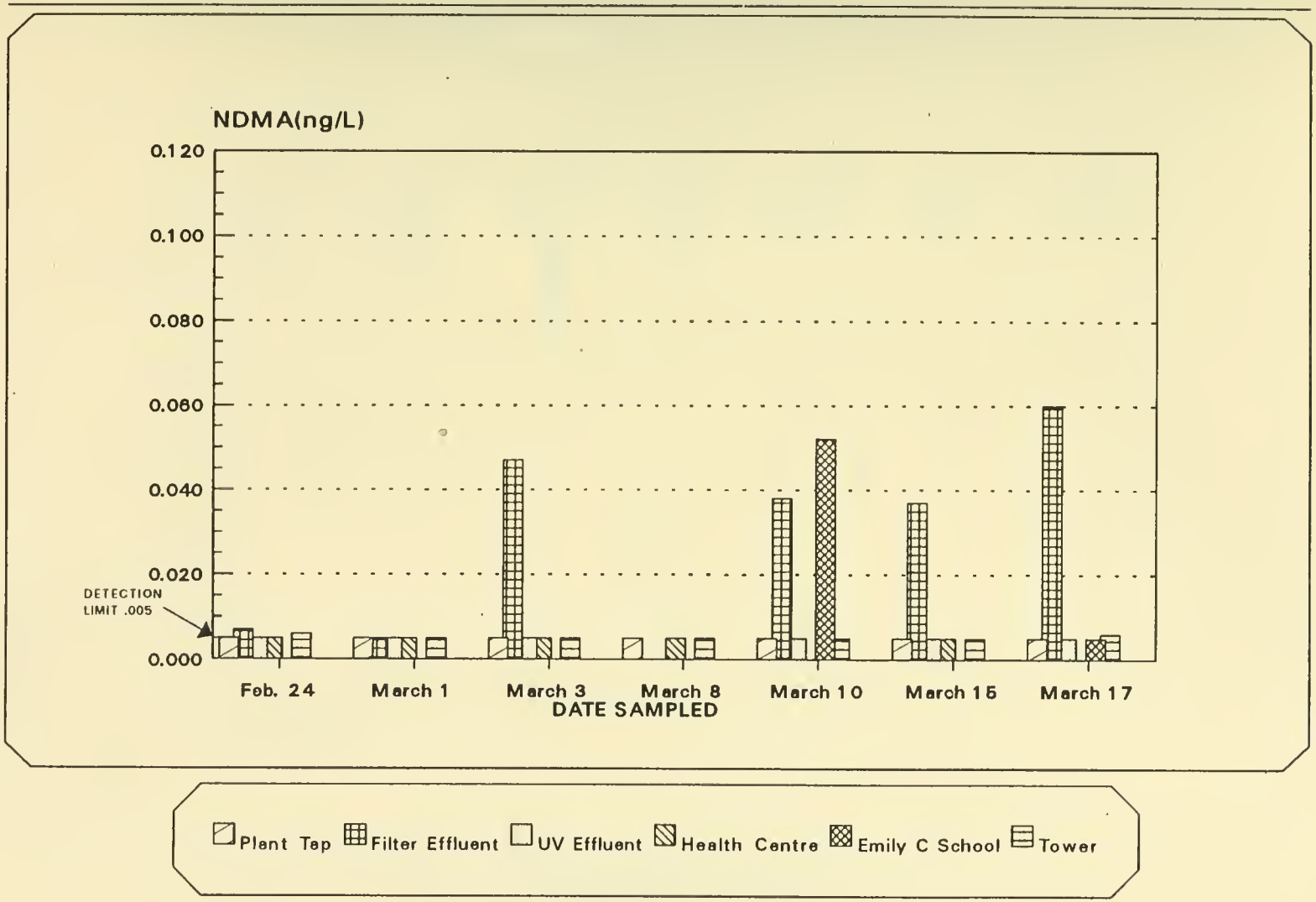


FIGURE A1-13: OHSWEKEN WATER SUPPLY
NDMA ANALYSIS 1994

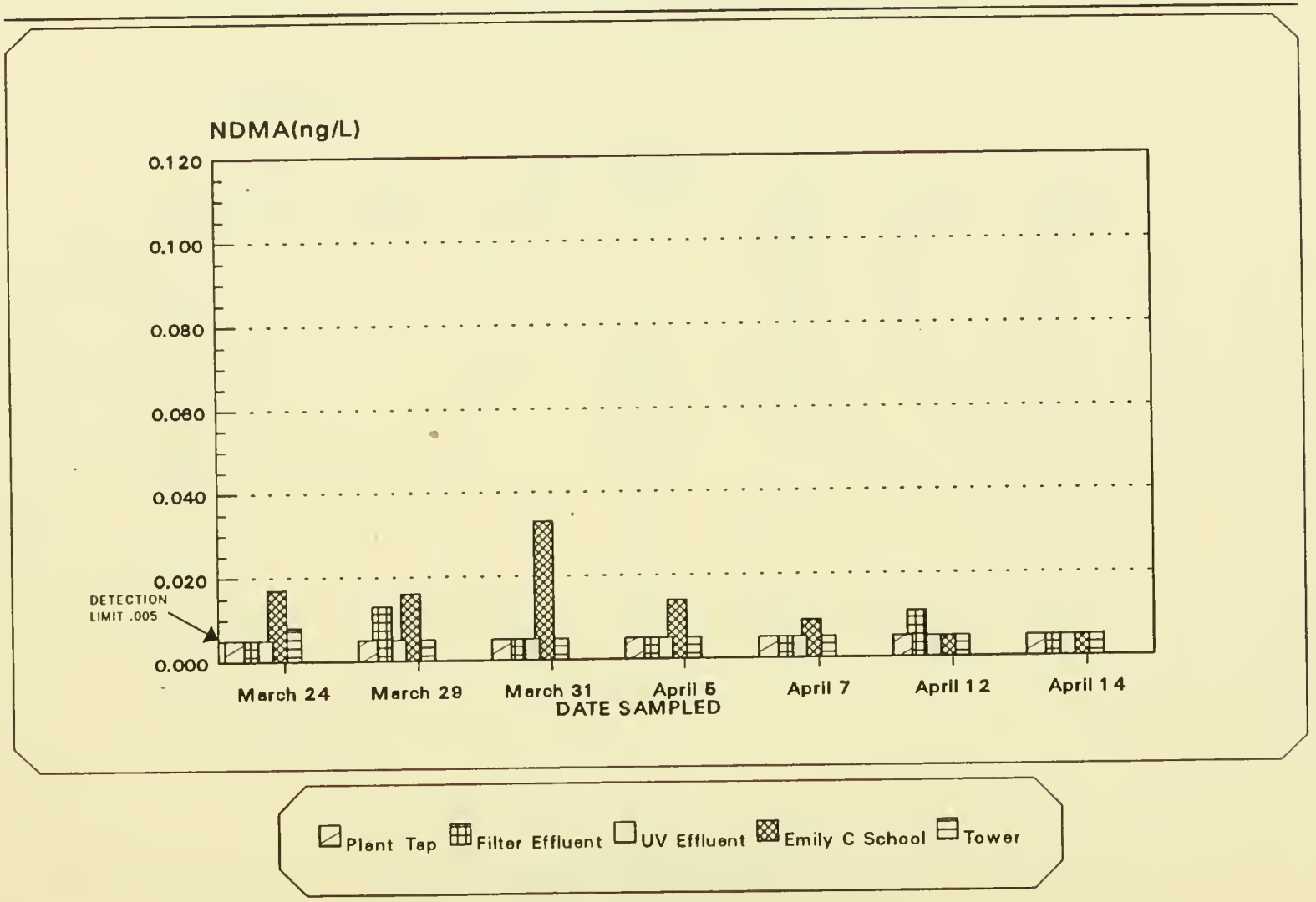


FIGURE A1-14: OHSWEKEN WATER SUPPLY
NDMA ANALYSIS 1994

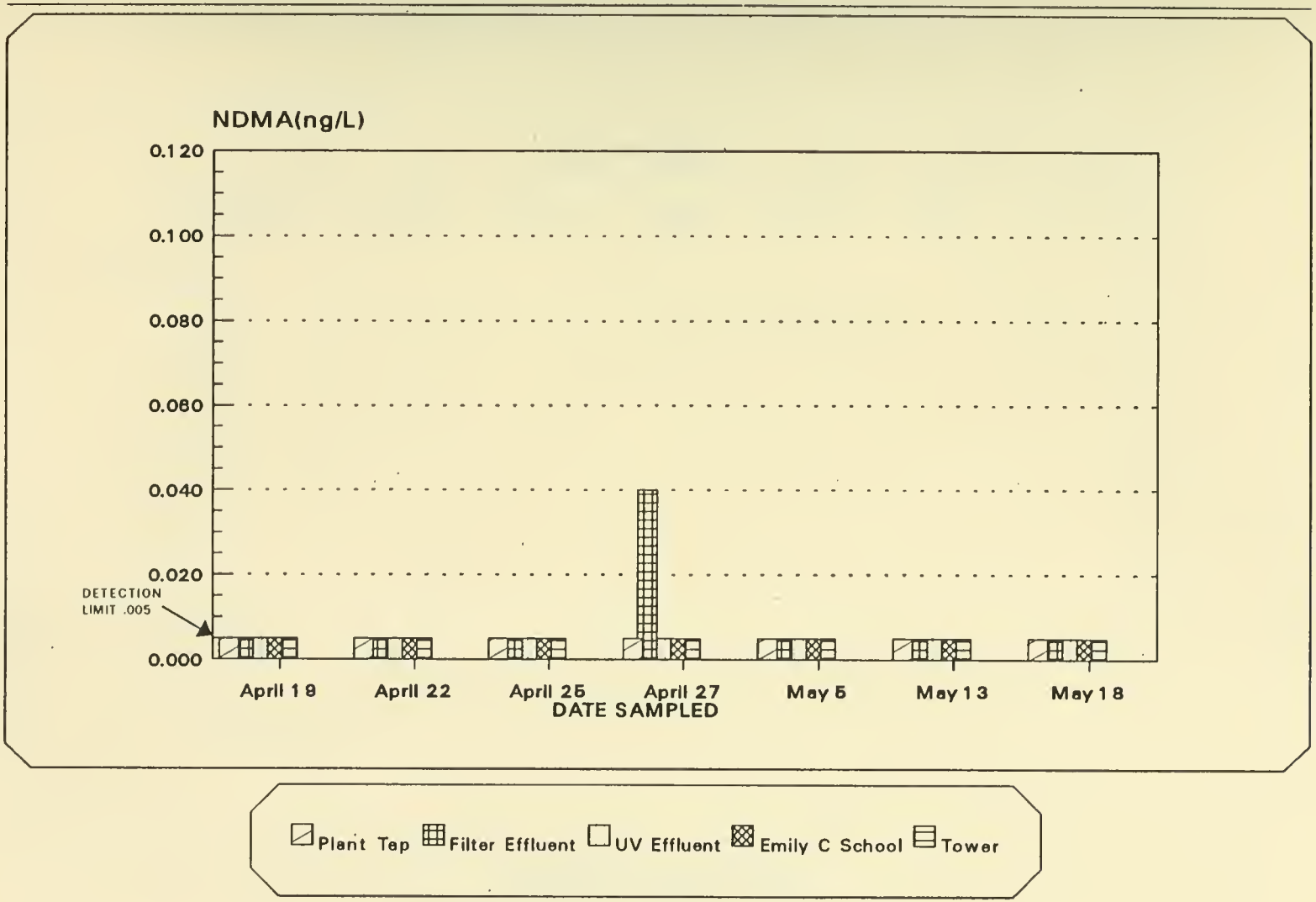
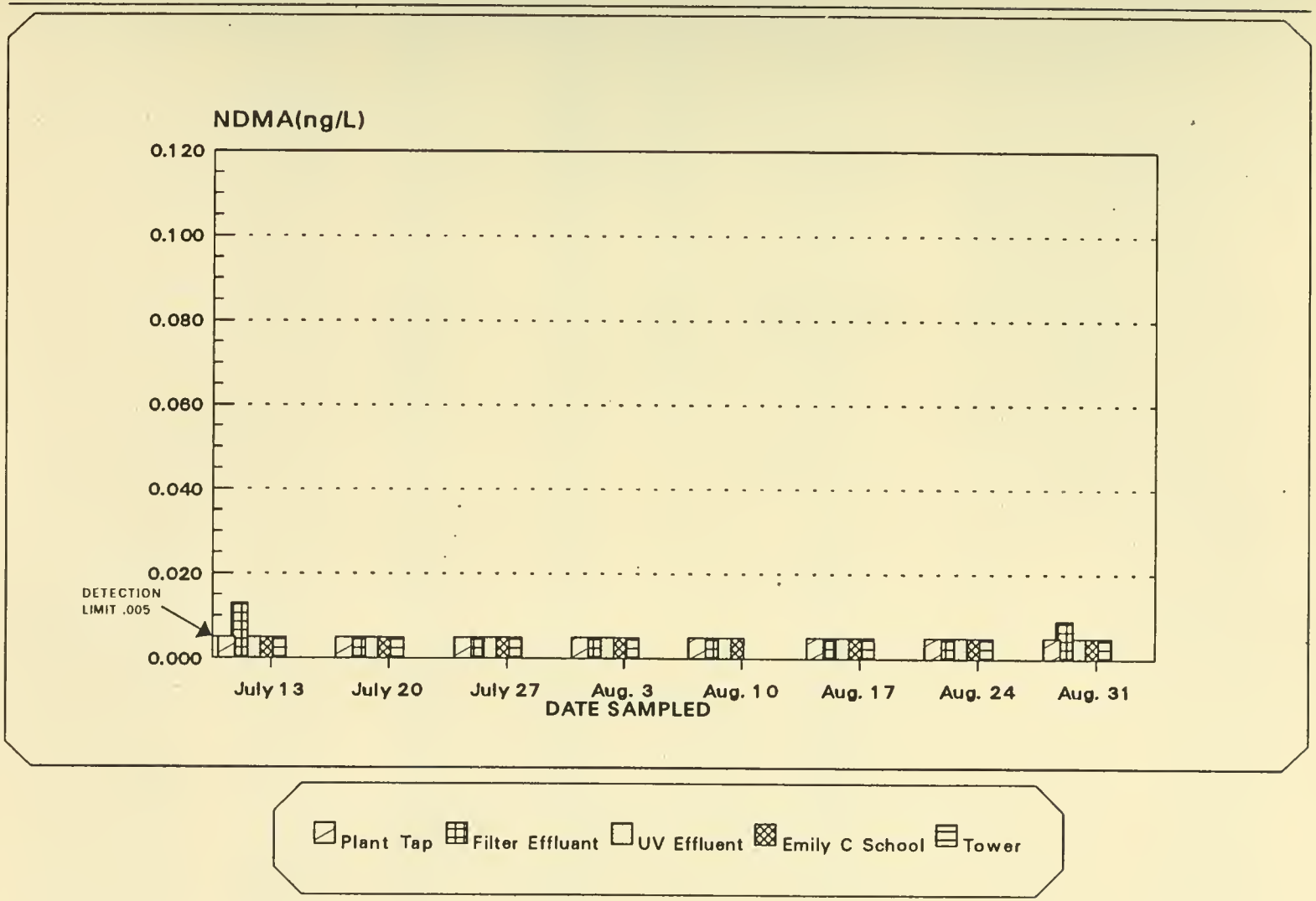


FIGURE A1-15: OHSWEKEN WATER SUPPLY
NDMA ANALYSIS 1994

FIGURE A1-16: OHSWEKEN WATER SUPPLY
NDMA ANALYSIS 1994



Appendix 2

Drinking Water Surveillance Program (DWSP)
Ohsweken Results - January 1993 to July 1994

PROGRAM DESCRIPTION

The Drinking Water Surveillance Program (DWSP) for Ontario monitors drinking water quality at municipal water supply systems. The DWSP Database Management System provides a computerized drinking water quality information system for the supplies monitored. The objectives of the program are to provide:

- immediate, reliable, current information on drinking water quality;
- a flagging mechanism for guideline exceedance;
- a definition of contaminant levels and trends;
- a comprehensive background for remedial action;
- a framework for assessment of new contaminants; and
- an indication of treatment efficiency of plant processes.

PROGRAM

The DWSP officially began in April 1986 and is designed to eventually include all municipal water supplies in Ontario. In August 1994, 125 systems were being monitored. Water supply locations have been prioritized for surveillance based primarily on criteria such as population density, probability of contamination and geographical location.

An ongoing assessment of future monitoring requirements at each location will be made. Monitoring will continue at the initial locations at an appropriate level and further locations will be phased into the program as resources permit.

A major goal of the program is to collect valid water quality data in context with plant operational characteristics at the time of sampling. As soon as sufficient data have been accumulated and analyzed, both the frequency of sampling and the range of parameters may be adjusted accordingly.

Assessments are carried out at all locations prior to initial sampling, in order to acquire complete plant process and distribution system details and to designate (and retrofit if necessary) all sampling systems and locations. This ensures that the sampled water is a reflection of the water itself.

Samples are generally taken of raw (ambient water) and treated water at the treatment plant and of consumer's tap water in the distribution system. Distribution system samples were not included as a routine part of DWSP monitoring in Ohsweken. Sampling is carried out by operational personnel who have been trained in applicable procedures.

Comprehensive standardized procedures and field test kits are supplied to sampling personnel. This ensures that samples are taken and handled according to standard protocols and that field testing will supply reliable data. All field and laboratory analyses are carried out using "approved documented procedures". Most laboratory analyses are carried out by the Ministry of Environment and Energy (MOEE), Laboratory Services Branch. Radionuclides are analyzed by the Ministry of Labour.

The following table list the results of analyses of DWSP samples collected between January 1993 and July 1994.

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
BACTERIOLOGICAL		
E COLI MF (CT/100ML)	DET'N LIMIT =	GUIDELINE = N/A
1994 MAY	12	.
1994 JUN	4	.
1994 JUL	24	.
FECAL COLIFORM MF (CT/100ML)	DET'N LIMIT =	GUIDELINE = 0 (A1)
1993 JAN	10 < = >	.
1993 JAN	BDL	.
1993 FEB	4	.
1993 FEB	16	.
1993 MAR	40	.
1993 APR	8	.
1993 APR	8	.
1993 APR	20	.
1993 JUL	60 A3C	.
1993 SEP	84	.
1993 NOV	16	.
1994 JAN	880	0
1994 FEB	BDL	.
1994 MAR	56	.
STANDRD PLATE CNT MF (CT/ML)	DET'N LIMIT =	GUIDELINE = 500 (A3)
1993 JAN	.	193
1993 FEB	.	8 < = >
1993 FEB	.	19
1993 MAR	.	1 < = >
1993 APR	.	24
1993 APR	.	33
1993 APR	.	160
1993 JUL	.	230
1993 SEP	.	37
1993 NOV	.	3 < = >
1994 JAN	.	40
1994 FEB	.	4 < = >
1994 MAR	.	3 < = >
1994 MAY	.	2 < = >
1994 JUN	.	20
1994 JUL	.	15

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
BACTERIOLOGICAL		
TOTAL COLIFORM MF (CT/100ML)	DET'N LIMIT =	GUIDELINE = 5/100ML (A1)
1993 JAN	40000	.
1993 JAN	3400	.
1993 FEB	480	.
1993 FEB	1280 A3C	.
1993 MAR	4100	.
1993 APR	5900	.
1993 APR	1100	.
1993 APR	460 A3C	.
1993 JUL	340 A3C	.
1993 SEP	580 A3C	.
1993 NOV	560 A3C	.
1994 JAN	17000	.
1994 FEB	60 < = >	.
1994 MAR	1000 A3C	.
1994 MAY	1400 A3C	.
1994 JUN	260 A3C	.
1994 JUL	200 A3C	.
T COLIFORM BCKGRD MF (CT/100ML)	DET'N LIMIT =	GUIDELINE = N/A
1993 JAN	93000	.
1993 JAN	5100	.
1993 FEB	3020	.
1993 FEB	6400 A3C	.
1993 MAR	14200	.
1993 APR	16000	.
1993 APR	3600	.
1993 APR	6200 A3C	.
1993 JUL	28000 A3C	.
1993 SEP	26000 A3C	.
1993 NOV	10800 A3C	.
1994 JAN	28000	.
1994 FEB	580	.
1994 MAR	51000 A3C	.
1994 MAY	76000 A3C	.
1994 JUN	18000 A3C	.
1994 JUL	48000 >	.

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
CHEMISTRY (FIELD)		
FLD CHLORINE (COMB) (MG/L)	DET'N LIMIT =	GUIDELINE = N/A
1993 APR	.	.100
1993 JUL	.	.300
1993 SEP	.	.200
1993 NOV	.	.200
1994 JAN	.	.400
1994 FEB	.	.650
1994 MAR	.	.150
1994 MAY	.	.300
1994 JUN	.	.200
FLD CHLORINE FREE (MG/L)	DET'N LIMIT =	GUIDELINE = N/A
1993 APR	.	.000
1993 JUL	.	.000
1993 NOV	.	.100
1994 JAN	.	.100
1994 FEB	.	.100
1994 MAR	.	.050
1994 MAY	.	.400
FLD CHLORINE (TOTAL) (MG/L)	DET'N LIMIT =	GUIDELINE = N/A
1993 APR	.	.100
1993 JUL	.	.300
1993 SEP	.	.200
1993 NOV	.	.300
1994 JAN	.	.500
1994 FEB	.	.750
1994 MAR	.	.200
1994 MAY	.	.700
1994 JUN	.	.200
1994 JUL	.	.100
FLD PH (DMNSLESS)	DET'N LIMIT =	GUIDELINE = 6.5-8.5 (A4)
1993 JAN	7.700	.
1993 APR	7.700	7.200
1993 JUL	7.900	7.300
1993 SEP	7.700	7.300
1993 NOV	7.700	7.300
1994 JAN	7.700	7.300
1994 FEB	7.500	7.300
1994 MAR	7.600	6.700
1994 MAY	7.900	7.100
1994 JUN	7.900	7.500
1994 JUL	7.900	7.500

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED		
CHEMISTRY (FIELD)				
FLD TEMPERATURE (DEG.C)			DET'N LIMIT =	GUIDELINE = 15 (A3)
1993 APR	.200	.		
1994 MAY	.	6.000		
FLD TURBIDITY (FTU)			DET'N LIMIT =	GUIDELINE = 1.0 (A1)
1993 APR	.	.020		
1993 JUL	.	.200		
1993 SEP	.	.200		
1994 JAN	.	.740		
1994 FEB	.	.650		
1994 MAR	.	.280		
1994 MAY	.	.020		
1994 JUN	23.000	.060		
1994 JUL	.	.230		

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

CHEMISTRY (LAB)

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
ALKALINITY (MG/L)	DET'N LIMIT = .200	GUIDELINE = 30-500 (A4)
1993 JAN	220.600	180.800
1993 JAN	266.100	.
1993 FEB	269.800	227.600
1993 FEB	273.500	240.400
1993 MAR	244.300	204.800
1993 APR	220.600	173.000
1993 APR	216.100	172.900
1993 APR	223.200	181.600
1993 JUL	201.000	151.100
1993 SEP	196.700	148.700
1993 NOV	216.400	182.900
1994 JAN	290.500	265.400
1994 FEB	277.600	251.000
1994 MAR	208.200	131.200
1994 MAY	227.900	170.100
1994 JUN	215.500	184.900
1994 JUL	189.900	158.000
CALCIUM (MG/L)	DET'N LIMIT = .050	GUIDELINE = 100 (F2)
1993 JAN	73.100	75.100
1993 JAN	93.700	.
1993 FEB	97.400	98.600
1993 FEB	98.900	98.100
1993 MAR	94.300	93.600
1993 APR	80.800	81.100
1993 APR	74.200	74.400
1993 APR	74.400	72.900
1993 JUL	74.500	73.500
1993 SEP	75.200	77.900
1993 NOV	88.150	87.950
1994 JAN	115.000	110.000
1994 FEB	109.000	109.000
1994 MAR	80.800	82.400
1994 MAY	81.500	82.000
1994 JUN	78.850	78.400
1994 JUL	78.050	77.800

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

CHEMISTRY (LAB)

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
CYANIDE (MG/L)	DET'N LIMIT = .001	GUIDELINE = 0.2 (A1)
1993 JAN	.	BDL
1993 FEB	.	BDL
1993 FEB	.	BDL
1993 MAR	.	BDL
1993 APR	.	BDL
1993 APR	.	BDL
1993 APR	.	BDL
1993 JUL	.	BDL
1993 SEP	.	BDL
1993 NOV	.	BDL
1994 JAN	.	BDL
1994 FEB	.	BDL
1994 MAR	.	.009
1994 MAY	.	BDL
1994 JUN	.	.004 <T
1994 JUL	.	BDL
CHLORIDE (MG/L)	DET'N LIMIT = .200	GUIDELINE = 250 (A3)
1993 JAN	33.700	59.500
1993 JAN	55.500	.
1993 FEB	70.100	106.000
1993 FEB	80.900	98.400
1993 MAR	102.000	110.000
1993 APR	44.300	75.200
1993 APR	39.100	64.800
1993 APR	37.500	59.100
1993 JUL	61.500	95.600
1993 SEP	60.900	91.600
1993 NOV	69.500	89.200
1994 JAN	101.000	115.000
1994 FEB	126.000	141.000
1994 MAR	91.600	170.000
1994 MAY	47.100	99.600
1994 JUN	66.600	98.600
1994 JUL	62.700	92.900

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
CHEMISTRY (LAB)		
COLOUR (HZU)	DET'N LIMIT = .200	GUIDELINE = 5 (A3)
1993 JAN	20.000	5.000
1993 JAN	15.000	.
1993 FEB	8.000	2.000
1993 FEB	9.500	3.000
1993 MAR	11.500	2.500
1993 APR	16.500	3.800
1993 APR	17.000	4.000
1993 APR	21.500	5.500
1993 JUL	13.600	3.200
1993 SEP	16.600	3.400
1993 NOV	12.600	2.200
1994 JAN	9.200	7.800
1994 FEB	9.400	5.600
1994 MAR	12.000	2.600
1994 MAY	13.200	1.200
1994 JUN	15.400	2.400
1994 JUL	18.000	3.200
CONDUCTIVITY (UMHO/CM)	DET'N LIMIT = 1.000	GUIDELINE = 400 (F2)
1993 JAN	553	586
1993 JAN	732	.
1993 FEB	783	828
1993 FEB	850	864
1993 MAR	924	954
1993 APR	606	642
1993 APR	573	598
1993 APR	571	582
1993 JUL	652	692
1993 SEP	694	735
1993 NOV	760	788
1994 JAN	1013	1005
1994 FEB	1065	1083
1994 MAR	776	898
1994 MAY	645	749
1994 JUN	739	816
1994 JUL	705	767

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

CHEMISTRY (LAB)

DISS ORG CARBON (MG/L) DET'N LIMIT = .100 GUIDELINE = 5.0 (A3)

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
1993 JAN	4.300	2.500
1993 JAN	4.100	.
1993 FEB	3.600	2.000
1993 FEB	3.200	2.000
1993 MAR	3.500	2.000
1993 APR	4.100	1.800
1993 APR	4.000	1.800
1993 APR	3.600	3.500
1993 JUL	4.700	2.500
1993 SEP	4.800	2.500
1993 NOV	5.000	3.100
1994 JAN	4.000	2.800
1994 FEB	4.000	2.600
1994 MAR	4.800	2.200
1994 MAY	5.300	2.500
1994 JUN	5.100	2.900
1994 JUL	5.400	2.900

FLUORIDE (MG/L) DET'N LIMIT = .010 GUIDELINE = 1.5 (A1)

1993 JAN	.100	.060
1993 JAN	.120	.
1993 FEB	.140	.040 <T
1993 FEB	.140	.080
1993 MAR	.140	.060
1993 APR	.120	.040 <T
1993 APR	.120	.060
1993 APR	.120	.060
1993 JUL	.160	.080
1993 SEP	.160	.080
1993 NOV	.180	.100
1994 JAN	.180	.120
1994 FEB	.160	.100
1994 MAR	.140	.020 <T
1994 MAY	.120	.060
1994 JUN	.140	.120
1994 JUL	.170	.100

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
CHEMISTRY (LAB)		
HARDNESS (MG/L)	DET'N LIMIT = .200	GUIDELINE = 80-100 (A4)
1993 JAN	261.000	267.000
1993 JAN	336.000	.
1993 FEB	352.000	356.000
1993 FEB	360.600	358.100
1993 MAR	335.000	334.000
1993 APR	287.000	290.000
1993 APR	260.000	261.000
1993 APR	265.050	259.330
1993 JUL	282.000	279.000
1993 SEP	277.600	282.700
1993 NOV	323.300	322.400
1994 JAN	410.000	400.000
1994 FEB	386.000	385.000
1994 MAR	285.000	290.000
1994 MAY	288.000	290.000
1994 JUN	284.780	288.170
1994 JUL	283.570	284.210
IONCAL (DMNSLESS)	DET'N LIMIT =	GUIDELINE = N/A
1993 JAN	2.807	.308
1993 JAN	1.448 NAF	.
1993 FEB	3.378 NAF	5.550 NAF
1993 FEB	4.646	4.747
1993 MAR	.501 NAF	4.815 NAF
1993 APR	.563	.354
1993 APR	3.044	2.874
1993 APR	3.414	3.376
1993 JUL	1.651	2.536
1993 SEP	6.262	10.580
1993 NOV	3.138	3.581
1994 JAN	1.494	2.435
1994 FEB	4.209	3.956
1994 MAR	2.066 NAF	3.936 NAF
1994 MAY	1.415	.955
1994 JUN	4.289	4.727
1994 JUL	1.679	2.727

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
CHEMISTRY (LAB)		
POTASSIUM (MG/L)	DET'N LIMIT = .010	GUIDELINE = 10 (F2)
1993 JAN	2.721	2.649
1993 JAN	2.653	.
1993 FEB	2.787	2.778
1993 FEB	2.900	2.870
1993 MAR	2.914	2.867
1993 APR	2.693	2.638
1993 APR	2.977	2.860
1993 APR	2.851	2.805
1993 JUL	3.091	3.113
1993 SEP	.374	3.261
1993 NOV	3.780	3.758
1994 JAN	3.796	3.711
1994 FEB	3.665	3.741
1994 MAR	4.060	3.660
1994 MAY	2.856	2.832
1994 JUN	3.137	3.082
1994 JUL	3.702	3.680
LANGELIERS INDEX (DMNSLESS)	DET'N LIMIT =	GUIDELINE = N/A
1993 JAN	1.092	.704
1993 JAN	1.289 NAF	.
1993 FEB	1.239	1.069
1993 FEB	1.339	1.008
1993 MAR	1.245	.924
1993 APR	1.200	.784
1993 APR	1.107	.639
1993 APR	1.203	.623
1993 JUL	1.161	.700
1993 SEP	1.200	.852
1993 NOV	1.171	.896
1994 JAN	1.292	1.114
1994 FEB	1.167	.922
1994 MAR	.976	.368
1994 MAY	1.065	.356
1994 JUN	1.132	.809
1994 JUL	1.164	.820

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

CHEMISTRY (LAB)

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED	
MAGNESIUM (MG/L)			DET'N LIMIT = .020 GUIDELINE = 30.0 (F2)
1993 JAN	19.000	19.400	
1993 JAN	24.800	.	
1993 FEB	26.300	26.700	
1993 FEB	27.500	27.400	
1993 MAR	24.300	24.400	
1993 APR	20.580	21.200	
1993 APR	18.200	18.200	
1993 APR	19.260	18.780	
1993 JUL	23.300	23.200	
1993 SEP	21.800	21.400	
1993 NOV	25.080	24.960	
1994 JAN	29.900	30.200	
1994 FEB	27.600	27.400	
1994 MAR	20.300	20.400	
1994 MAY	20.600	20.800	
1994 JUN	21.360	22.440	
1994 JUL	21.540	21.840	
SODIUM (MG/L)			DET'N LIMIT = .020 GUIDELINE = 200 (A4)
1993 JAN	18.860	20.340	
1993 JAN	33.900	.	
1993 FEB	38.600	40.000	
1993 FEB	46.800	45.300	
1993 MAR	63.600	65.800	
1993 APR	24.540	24.700	
1993 APR	21.260	21.360	
1993 APR	20.640	19.080	
1993 JUL	36.700	38.500	
1993 SEP	33.800	31.200	
1993 NOV	41.700	42.600	
1994 JAN	61.100	60.500	
1994 FEB	74.500	73.200	
1994 MAR	51.600	66.800	
1994 MAY	24.800	36.700	
1994 JUN	41.400	47.540	
1994 JUL	35.340	40.320	

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
CHEMISTRY (LAB)		
AMMONIUM TOTAL (MG/L)	DET'N LIMIT = .002	GUIDELINE = 0.05 (F2)
1993 JAN	.046	.120
1993 JAN	.004 <T	.
1993 FEB	.356	.368
1993 FEB	.398	.430
1993 MAR	.298	.268
1993 APR	.036	.054
1993 APR	.160	.170
1993 APR	.010	.036
1993 JUL	.020	.016
1993 SEP	.080	.018
1993 NOV	.066	.008 <T
1994 JAN	1.010	.966
1994 FEB	1.170	1.130
1994 MAR	.684	.038
1994 MAY	.040	.014
1994 JUN	.046	BDL
1994 JUL	.020	.028
NITRITE (MG/L)	DET'N LIMIT = .001	GUIDELINE = 1.0 (A1)
1993 JAN	.154	.054
1993 JAN	.003 <T	.
1993 FEB	.040	.002 <T
1993 FEB	.096	.015
1993 MAR	.043	.003 <T
1993 APR	.038	.030
1993 APR	.043	.001 <T
1993 APR	.031	.030
1993 JUL	.019	.001 <T
1993 SEP	.029	.004 <T
1993 NOV	.033	.002 <T
1994 JAN	.041	!IR
1994 FEB	.041	.150
1994 MAR	.035	.042
1994 MAY	.061	.001 <T
1994 JUN	.056	.003 <T
1994 JUL	.028	.068

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
CHEMISTRY (LAB)		
NITRATE (TOTAL) (MG/L)	DET'N LIMIT = .005	GUIDELINE = 10.0 (A1)
1993 JAN	2.800	2.720
1993 JAN	.525	.
1993 FEB	4.130	4.040
1993 FEB	4.510	4.420
1993 MAR	3.960	4.000
1993 APR	2.600	2.570
1993 APR	3.000	2.940
1993 APR	2.580	2.500
1993 JUL	2.500	2.340
1993 SEP	1.930	1.930
1993 NOV	2.590	2.500
1994 JAN	4.180	4.070
1994 FEB	3.770	3.890
1994 MAR	3.080	3.310
1994 MAY	3.360	3.410
1994 JUN	2.500	2.590
1994 JUL	4.560	4.380
NITROGEN TOT KJELD (MG/L)	DET'N LIMIT = .020	GUIDELINE = N/A
1993 JAN	.810	.540
1993 JAN	.520	.
1993 FEB	.790	.690
1993 FEB	.700	.760
1993 MAR	.780	.620
1993 APR	.700	.320
1993 APR	.820	.460
1993 APR	.740	.460
1993 JUL	.800	.320
1993 SEP	.740	.380
1993 NOV	.660	.360
1994 JAN	1.620	1.440
1994 FEB	1.660	1.420
1994 MAR	1.550	.380
1994 MAY	.900	.240
1994 JUN	.920	.360
1994 JUL	.920	.420

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
CHEMISTRY (LAB)		
PH (DMNSLESS)	DET'N LIMIT =	GUIDELINE = 6.5-8.5 (A4)
1993 JAN	8.350	8.040
1993 JAN	8.370	.
1993 FEB	8.300	8.200
1993 FEB	8.390	8.120
1993 MAR	8.370	8.130
1993 APR	8.420	8.110
1993 APR	8.370	8.000
1993 APR	8.450	7.970
1993 JUL	8.460	8.130
1993 SEP	8.520	8.310
1993 NOV	8.370	8.170
1994 JAN	8.260	8.140
1994 FEB	8.180	7.980
1994 MAR	8.230	7.820
1994 MAY	8.270	7.690
1994 JUN	8.380	8.130
1994 JUL	8.470	8.210
PHOSPHORUS FIL REACT (MG/L)	DET'N LIMIT = .001	GUIDELINE = N/A
1993 JAN	.047	.002 <T
1993 JAN	BDL	.
1993 FEB	.013	BDL
1993 FEB	.013	BDL
1993 MAR	.008	BDL
1993 APR	.011	BDL
1993 APR	.037	BDL
1993 APR	.007	BDL
1993 JUL	.006	BDL
1993 SEP	.023	.001 <T
1993 NOV	.005	.001 <T
1994 JAN	.030	.004 <T
1994 FEB	.036	.001 <T
1994 MAR	.020	.001 <T
1994 MAY	.004 <T	BDL
1994 JUN	.017	BDL
1994 JUL	.005	BDL

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
PHOSPHORUS TOTAL (MG/L)	DET'N LIMIT = .002	GUIDELINE = 0.40 (F2)
1993 JAN	.094	.032
1993 JAN	.058	.
1993 FEB	.048	.004 <T
1993 FEB	.032	.002 <T
1993 MAR	.038	.004 <T
1993 APR	.054	.002 <T
1993 APR	.084	.012
1993 APR	.062	.012
1993 JUL	.094	.002 <T
1993 SEP	.074	.014
1993 NOV	.028	.006 <T
1994 JAN	.056	.008 <T
1994 FEB	.066	.008 <T
1994 MAR	.130	.008 <T
1994 MAY	.100	.002 <T
1994 JUN	.136	.006 <T
1994 JUL	.096	.008 <T
RESIDUE FILTRATE (MG/L)	DET'N LIMIT = 2.000	GUIDELINE = 500 (A3)
1993 JAN	359.000 CRO	381.000 CRO
1993 JAN	469.000	.
1993 FEB	509.000 CRO	544.000
1993 FEB	570.000	567.000
1993 MAR	582.000	615.000
1993 APR	394.000 CRO	417.000 CRO
1993 APR	372.000 CRO	389.000 CRO
1993 APR	371.000 CRO	378.000 CRO
1993 JUL	424.000 CRO	450.000 CRO
1993 SEP	451.000 CRO	478.000 CRO
1993 NOV	494.000 CRO	512.000 CRO
1994 JAN	542.000	537.000
1994 FEB	670.000	676.000
1994 MAR	504.000 CRO	652.000
1994 MAY	419.000 CRO	487.000 CRO
1994 JUN	480.000 CRO	601.000
1994 JUL	458.000 CRO	499.000 CRO
SILICATES (MG/L)	DET'N LIMIT = .020	GUIDELINE = N/A
1993 FEB	3.160	3.080
1993 FEB	3.160	2.940
1993 MAR	2.700	2.480
1993 APR	.640	.680
1993 APR	1.900	1.900
1993 APR	1.300	1.300
1993 JUL	1.180	.980
1993 SEP	2.480	1.880
1993 NOV	.540	.500
1994 JAN	3.500	3.340
1994 FEB	4.260	3.980
1994 MAR	2.980	2.680
1994 MAY	1.280	1.200
1994 JUN	.400	.380
1994 JUL	2.720	2.100

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

CHEMISTRY (LAB)

SULPHATE (MG/L) DET'N LIMIT = .500 GUIDELINE = 500 (A3)

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
1993 JAN	34.340	40.250
1993 JAN	58.530	.
1993 FEB	68.780	77.980
1993 FEB	81.580	84.830
1993 MAR	75.480	82.060
1993 APR	50.770	57.580
1993 APR	36.700	43.700
1993 APR	37.370	39.270
1993 JUL	72.040	78.470
1993 SEP	74.710	83.160
1993 NOV	79.300	84.120
1994 JAN	107.420	105.320
1994 FEB	106.850	106.630
1994 MAR	62.500	71.310
1994 MAY	42.760	52.460
1994 JUN	73.770	77.660
1994 JUL	73.550	78.900

TURBIDITY (FTU) DET'N LIMIT = .010 GUIDELINE = 1.0 (A1)

1993 JAN	23.100	7.920 RRV
1993 JAN	10.600	.
1993 FEB	5.390	.230 <T
1993 FEB	4.110	.200 <T
1993 MAR	5.270	.340
1993 APR	14.000	.140 <T
1993 APR	13.500	.150 <T
1993 APR	13.000	3.740 RRV
1993 JUL	25.600 S46	.180
1993 SEP	19.900	4.040 RRV
1993 NOV	5.100	.080
1994 JAN	3.530 S24	.590
1994 FEB	3.010	.550
1994 MAR	30.200	.270
1994 MAY	21.200 S46	.010 <T
1994 JUN	38.200 S46	.070
1994 JUL	27.000 S24	.210

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
METAL SCAN		
SILVER (UG/L)	DET'N LIMIT = .050	GUIDELINE = N/A
32 SAMPLES	BDL	BDL
ALUMINUM (UG/L)	DET'N LIMIT = .100	GUIDELINE = 100 (A4)
1993 JAN	240.000	4350.000 RRV
1993 JAN	150.000	.
1993 FEB	2000.000	290.000 RRV
1993 FEB	79.000	230.000 RRV
1993 MAR	82.000	190.000 RRV
1993 APR	170.000	87.000
1993 APR	!WP	98.000
1993 APR	190.000	2200.000 RRV
1993 JUL	320.000	66.000
1993 SEP	190.000	3200.000 RRV
1993 NOV	290.000	170.000
1994 JAN	320.000	1030.000 RRV
1994 FEB	860.000	1150.000 RRV
1994 MAR	2650.000	320.000
1994 MAY	1355.000	30.000
1994 JUN	.	81.000 UIP
1994 JUL	550.000	170.000
ARSENIC (UG/L)	DET'N LIMIT = .100	GUIDELINE = 25 (A1)
1993 JAN	.530 <T	.320 <T
1993 JAN	.970 <T	.
1993 FEB	.730 <T	.630 <T
1993 FEB	.710 <T	.470 <T
1993 MAR	BDL	BDL
1993 APR	.470 <T	.230 <T
1993 APR	!WP	.110 <T
1993 APR	.640 <T	.180 <T
1993 JUL	.860 <T	.410 <T
1993 SEP	.830 <T	.350 <T
1993 NOV	BDL	BDL
1994 JAN	.400 <T	.810 <T
1994 FEB	.760 <T	1.000 <T
1994 MAR	.300 <T	BDL
1994 MAY	.390 <T	.190 <T
1994 JUN	1.100	BDL
1994 JUL	.990 <T	BDL

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED	
METAL SCAN			
BARIUM (UG/L)		DET'N LIMIT = .050	GUIDELINE = 1000 (A2)
1993 JAN	27.000	20.000	
1993 JAN	37.000	.	
1993 FEB	48.000	30.000	
1993 FEB	47.000	30.000	
1993 MAR	52.000	37.000	
1993 APR	31.000	23.000	
1993 APR	!WP	23.000	
1993 APR	29.000	24.000	
1993 JUL	37.000	32.000	
1993 SEP	37.000	32.000	
1993 NOV	31.000	23.000	
1994 JAN	43.000	34.000	
1994 FEB	42.000	32.000	
1994 MAR	34.000	24.000	
1994 MAY	32.000	22.000	
1994 JUN	44.000	35.000 UIP	
1994 JUL	40.000	35.000	
BORON (UG/L)		DET'N LIMIT = 2.000	GUIDELINE = 5000 (A1)
1993 JAN	25.000	20.000 <T	
1993 JAN	31.000	.	
1993 FEB	40.000	37.000	
1993 FEB	70.000	67.000	
1993 MAR	44.000	46.000	
1993 APR	50.000	48.000	
1993 APR	!WP	29.000	
1993 APR	31.000	30.000	
1993 JUL	45.000	44.000	
1993 SEP	45.000	42.000	
1993 NOV	50.000	50.000	
1994 JAN	51.000	52.000	
1994 FEB	48.000	60.000	
1994 MAR	30.000	30.000	
1994 MAY	30.000	38.000	
1994 JUN	60.000	53.000 UIP	
1994 JUL	59.000	53.000	

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
METAL SCAN		
BERYLLIUM (UG/L)	DET'N LIMIT = .050	GUIDELINE = 6800 (D4)
1993 JAN	BDL	BDL
1993 JAN	BDL	.
1993 FEB	BDL	BDL
1993 FEB	.090 <T	.100 <T
1993 MAR	BDL	BDL
1993 APR	.080 <T	.060 <T
1993 APR	!WP	BDL
1993 APR	BDL	BDL
1993 JUL	BDL	BDL
1993 SEP	BDL	BDL
1993 NOV	BDL	BDL
1994 JAN	BDL	.060 <T
1994 FEB	BDL	BDL
1994 MAR	BDL	BDL
1994 MAY	BDL	BDL
1994 JUN	.060 <T	BDL
1994 JUL	BDL	BDL
CADMIUM (UG/L)	DET'N LIMIT = .050	GUIDELINE = 5.0 (A1)
1993 JAN	BDL	BDL
1993 JAN	.100 <T	.
1993 FEB	BDL	BDL
1993 FEB	BDL	BDL
1993 MAR	.070 <T	BDL
1993 APR	BDL	BDL
1993 APR	!WP	BDL
1993 APR	BDL	.060 <T
1993 JUL	BDL	BDL
1993 SEP	BDL	BDL
1993 NOV	.060 <T	BDL
1994 JAN	.080 <T	.080 <T
1994 FEB	.070 <T	.060 <T
1994 MAR	.080 <T	.080 <T
1994 MAY	BDL	BDL
1994 JUN	.100 <T	BDL
1994 JUL	.070 <T	.060 <T

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
METAL SCAN		
COBALT (UG/L)	DET'N LIMIT = .020	GUIDELINE = N/A
1993 JAN	1.000 <T	.980 <T
1993 JAN	2.600	.
1993 FEB	.090 <T	.070 <T
1993 FEB	.200 <T	.190 <T
1993 MAR	.110 <T	.040 <T
1993 APR	.190 <T	.090 <T
1993 APR	!WP	.120 <T
1993 APR	.490 <T	.350 <T
1993 JUL	.690 <T	.410 <T
1993 SEP	.370 <T	.180 <T
1993 NOV	BDL	BDL
1994 JAN	.180 <T	.380 <T
1994 FEB	.340 <T	.340 <T
1994 MAR	BDL	BDL
1994 MAY	BDL	BDL
1994 JUN	.560 <T	.080 <T
1994 JUL	.440 <T	.170 <T
CHROMIUM (UG/L)	DET'N LIMIT = .500	GUIDELINE = 50.0 (A1)
1993 JAN	3.600 <T	1.400 <T
1993 JAN	2.200 <T	.
1993 FEB	7.300	6.700
1993 FEB	9.900	8.900
1993 MAR	.940 <T	.640 <T
1993 APR	7.000	5.500
1993 APR	!WP	1.200 <T
1993 APR	4.700 <T	4.400 <T
1993 JUL	2.000 <T	1.300 <T
1993 SEP	BDL	BDL
1993 NOV	.600 <T	BDL
1994 JAN	.750 <T	8.100
1994 FEB	.530 <T	3.600 <T
1994 MAR	.670 <T	BDL
1994 MAY	1.700 <T	3.000 <T
1994 JUN	6.000	2.300 <T
1994 JUL	4.200 <T	3.200 <T

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
METAL SCAN		
COPPER (UG/L)	DET'N LIMIT = .500	GUIDELINE = 1000 (A3)
1993 JAN	2.800 <T	1.600 <T
1993 JAN	4.000 <T	.
1993 FEB	7.100	5.000 <T
1993 FEB	2.600 <T	3.800 <T
1993 MAR	3.700 <T	3.900 <T
1993 APR	1.700 <T	4.200 <T
1993 APR	!WP	3.250 <T
1993 APR	2.400 <T	3.900 <T
1993 JUL	2.500 <T	5.200
1993 SEP	2.700 <T	3.500 <T
1993 NOV	2.100 <T	4.100 <T
1994 JAN	2.600 <T	2.800 <T
1994 FEB	2.300 <T	2.900 <T
1994 MAR	2.600 <T	2.600 <T
1994 MAY	2.100 <T	2.100 <T
1994 JUN	3.000 <T	1.700 <T
1994 JUL	3.000 <T	3.100 <T
IRON (UG/L)	DET'N LIMIT = 6.000	GUIDELINE = 300 (A3)
1993 JAN	230.000	60.000 <T
1993 JAN	190.000	.
1993 FEB	120.000	11.000 <T
1993 FEB	120.000	7.300 <T
1993 MAR	160.000	8.600 <T
1993 APR	240.000	BDL
1993 APR	!WP	BDL
1993 APR	250.000	42.000 <T
1993 JUL	470.000	33.000 <T
1993 SEP	280.000	56.000 <T
1993 NOV	120.000	6.700 <T
1994 JAN	110.000	18.000 <T
1994 FEB	74.000	14.000 <T
1994 MAR	300.000	8.300 <T
1994 MAY	320.000	BDL
1994 JUN	.	BDL
1994 JUL	440.000	9.300 <T
MERCURY (UG/L)	DET'N LIMIT = .020	GUIDELINE = 1.0 (A1)
33 SAMPLES	BDL	BDL

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
METAL SCAN		
MANGANESE (UG/L)	DET'N LIMIT = .050	GUIDELINE = 50.0 (A3)
1993 JAN	22.000	19.000
1993 JAN	38.000	.
1993 FEB	37.000	39.000
1993 FEB	34.000	34.000
1993 MAR	49.000	47.000
1993 APR	39.000	43.000
1993 APR	!WP	25.000
1993 APR	36.000	29.000
1993 JUL	49.000	12.000
1993 SEP	43.000	21.000
1993 NOV	12.000	3.100
1994 JAN	16.000	18.000
1994 FEB	18.000	17.000
1994 MAR	36.000	35.000
1994 MAY	47.000	3.000
1994 JUN	.	6.700 UIP
1994 JUL	53.000	8.600
MOLYBDENUM (UG/L)	DET'N LIMIT = .050	GUIDELINE = N/A
1993 JAN	.290 <T	.390 <T
1993 JAN	.590	.
1993 FEB	1.100	1.300
1993 FEB	1.800	1.700
1993 MAR	1.300	1.500
1993 APR	.720	1.000
1993 APR	!WP	.580
1993 APR	.640	.590
1993 JUL	.970	1.500
1993 SEP	1.600	1.600
1993 NOV	1.600	1.800
1994 JAN	2.300	2.600
1994 FEB	2.200	2.500
1994 MAR	.750	1.500
1994 MAY	.530	.790
1994 JUN	.930	2.100 UIP
1994 JUL	1.600	2.300

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
METAL SCAN		
NICKEL (UG/L)	DET'N LIMIT = .200	GUIDELINE = 350 (D3)
1993 JAN	2.400	1.700 <T
1993 JAN	7.700	.
1993 FEB	BDL	BDL
1993 FEB	.810 <T	1.100 <T
1993 MAR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	!WP	BDL
1993 APR	BDL	BDL
1993 JUL	5.800	4.900
1993 SEP	5.100	3.300
1993 NOV	4.600	4.800
1994 JAN	4.000	5.500
1994 FEB	2.900	3.000
1994 MAR	4.000	4.900
1994 MAY	BDL	BDL
1994 JUN	1.800 <T	1.600 <T
1994 JUL	BDL	BDL
LEAD (UG/L)	DET'N LIMIT = .050	GUIDELINE = 10 (A1)
1993 JAN	.360 <T	BDL
1993 JAN	.500 <T	.
1993 FEB	.700	.490 <T
1993 FEB	.300 <T	.300 <T
1993 MAR	.710	.350 <T
1993 APR	.410 <T	.220 <T
1993 APR	!WP	.260 <T
1993 APR	.500 <T	.410 <T
1993 JUL	1.000	.430 <T
1993 SEP	1.200	.370 <T
1993 NOV	.240 <T	.140 <T
1994 JAN	.390 <T	.290 <T
1994 FEB	.270 <T	.240 <T
1994 MAR	.710	.230 <T
1994 MAY	1.100	.140 <T
1994 JUN	1.900	.230 <T
1994 JUL	1.100	.330 <T

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
METAL SCAN		
ANTIMONY (UG/L)	DET'N LIMIT = .050	GUIDELINE = 6 (D1)
1993 JAN	.440 <T	.650
1993 JAN	.420 <T	.
1993 FEB	.490 <T	.510
1993 FEB	.340 <T	.410 <T
1993 MAR	.430 <T	.420 <T
1993 APR	.340 <T	.390 <T
1993 APR	!WP	.540
1993 APR	.310 <T	.370 <T
1993 JUL	.520	.580
1993 SEP	.470 <T	.620
1993 NOV	.600	.460 <T
1994 JAN	.580	.630
1994 FEB	.550	.600
1994 MAR	.350 <T	.550
1994 MAY	.440 <T	.310 <T
1994 JUN	.600	.840 UIP
1994 JUL	.570	.680
SELENIUM (UG/L)	DET'N LIMIT = 1.000	GUIDELINE = 10 (A1)
1993 JAN	1.400 <T	2.100 <T
1993 JAN	BDL	.
1993 FEB	BDL	1.400 <T
1993 FEB	1.100 <T	1.200 <T
1993 MAR	1.300 <T	BDL
1993 APR	BDL	BDL
1993 APR	!WP	BDL
1993 APR	BDL	BDL
1993 JUL	BDL	BDL
1993 SEP	BDL	BDL
1993 NOV	BDL	BDL
1994 JAN	BDL	BDL
1994 FEB	BDL	BDL
1994 MAR	BDL	1.100 <T
1994 MAY	BDL	BDL
1994 JUN	BDL	1.500 <T
1994 JUL	BDL	1.200 <T

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
METAL SCAN		
STRONTIUM (UG/L)	DET'N LIMIT = .100	GUIDELINE = N/A
1993 JAN	260.000	250.000
1993 JAN	450.000	.
1993 FEB	580.000	560.000
1993 FEB	710.000	680.000
1993 MAR	740.000	720.000
1993 APR	390.000	380.000
1993 APR	!WP	300.000
1993 APR	290.000	250.000
1993 JUL	520.000	500.000
1993 SEP	550.000	540.000
1993 NOV	540.000	520.000
1994 JAN	730.000	770.000
1994 FEB	740.000	750.000
1994 MAR	480.000	430.000
1994 MAY	340.000	330.000
1994 JUN	600.000	570.000 UIP
1994 JUL	613.000	600.000
TITANIUM (UG/L)	DET'N LIMIT = .500	GUIDELINE = N/A
1993 JAN	20.000	13.000
1993 JAN	29.000	.
1993 FEB	4.400 <T	2.900 <T
1993 FEB	7.500	4.500 <T
1993 MAR	9.500	5.300
1993 APR	8.100	2.800 <T
1993 APR	!WP	5.200
1993 APR	11.000	4.400 <T
1993 JUL	13.000	5.300
1993 SEP	12.000	7.400
1993 NOV	5.100	2.500 <T
1994 JAN	10.000	7.400
1994 FEB	13.000	11.000
1994 MAR	7.600	3.600 <T
1994 MAY	15.000	7.400
1994 JUN	13.000	4.500 <T
1994 JUL	16.000	7.900
THALLIUM (UG/L)	DET'N LIMIT = .050	GUIDELINE = 13 (D4)
32 SAMPLES	BDL	BDL

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
METAL SCAN		
URANIUM (UG/L)	DET'N LIMIT = .050	GUIDELINE = 100 (A1)
1993 JAN	.640	.240 <T
1993 JAN	.600	.
1993 FEB	1.000	.090 <T
1993 FEB	.820	.090 <T
1993 MAR	1.100	.130 <T
1993 APR	.660	BDL
1993 APR	!WP	BDL
1993 APR	.680	.160 <T
1993 JUL	.640	BDL
1993 SEP	.590	.120 <T
1993 NOV	.530	.080 <T
1994 JAN	1.000	.390 <T
1994 FEB	.900	.260 <T
1994 MAR	.780	BDL
1994 MAY	.900	BDL
1994 JUN	.870	.160 <T
1994 JUL	.590	.070 <T
VANADIUM (UG/L)	DET'N LIMIT = .050	GUIDELINE = N/A
1993 JAN	.640	.320 <T
1993 JAN	.710	.
1993 FEB	.450 <T	.240 <T
1993 FEB	.420 <T	.240 <T
1993 MAR	BDL	BDL
1993 APR	.660	.280 <T
1993 APR	!WP	BDL
1993 APR	.610	.060 <T
1993 JUL	1.700	.860
1993 SEP	1.600	1.200
1993 NOV	.850	.680
1994 JAN	.910	.900
1994 FEB	1.300	1.400
1994 MAR	.950	.630
1994 MAY	.730	.210 <T
1994 JUN	1.300	.310 <T
1994 JUL	1.100	BDL

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED	
METAL SCAN			
ZINC (UG/L)		DET'N LIMIT = .200	GUIDELINE = 5000 (A3)
1993 JAN	8.500	4.900	
1993 JAN	9.500	.	
1993 FEB	12.000	8.700	
1993 FEB	10.000	7.400	
1993 MAR	13.000	8.900	
1993 APR	2.100	2.100	
1993 APR	!WP	4.000	
1993 APR	5.000	3.600	
1993 JUL	6.900	3.500	
1993 SEP	6.300	4.300	
1993 NOV	5.300	6.200	
1994 JAN	9.400	7.100	
1994 FEB	13.000	10.000	
1994 MAR	8.100	5.000	
1994 MAY	7.300	2.500	
1994 JUN	12.000	3.200	UIP
1994 JUL	9.900	7.900	

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED		
CHLOROAROMATICS				
HEXACHLOROBUTADIENE (NG/L)			DET'N LIMIT = 1.000	GUIDELINE = 450 (D4)
33 SAMPLES	BDL	BDL		
123-TRICHLOROBENZENE (NG/L)			DET'N LIMIT = 5.000	GUIDELINE = N/A
33 SAMPLES	BDL	BDL		
1234-TETCLOROBENZENE (NG/L)			DET'N LIMIT = 1.000	GUIDELINE = N/A
33 SAMPLES	BDL	BDL		
1235-TETCLOROBENZENE (NG/L)			DET'N LIMIT = 1.000	GUIDELINE = N/A
33 SAMPLES	BDL	BDL		
124-TRICHLOROBENZENE (NG/L)			DET'N LIMIT = 5.000	GUIDELINE = 10000 (I)
33 SAMPLES	BDL	BDL		
1245-TETCLOROBENZENE (NG/L)			DET'N LIMIT = 1.000	GUIDELINE = 38000 (D4)
33 SAMPLES	BDL	BDL		
135-TRICHLOROBENZENE (NG/L)			DET'N LIMIT = 5.000	GUIDELINE = N/A
33 SAMPLES	BDL	BDL		
HEXACHLOROBENZENE (NG/L)			DET'N LIMIT = 1.000	GUIDELINE = 10 (C1)
33 SAMPLES	BDL	BDL		
HEXACHLOROETHANE (NG/L)			DET'N LIMIT = 1.000	GUIDELINE = 1900 (D4)
1993 JAN	BDL	BDL		
1993 JAN	BDL			
1993 FEB	BDL	BDL		
1993 FEB	BDL	BDL		
1993 MAR	BDL	BDL		
1993 APR	BDL	BDL		
1993 APR	BDL	BDL		
1993 APR	BDL	BDL		
1993 JUL	BDL	BDL		
1993 SEP	BDL	BDL		
1993 NOV	BDL	BDL		
1994 JAN	BDL	BDL		
1994 FEB	BDL	BDL		
1994 MAR	BDL	BDL		
1994 MAY	BDL	6.000 <T		
1994 JUN	BDL	BDL		
1994 JUL	BDL	1.000 <T		

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED		
CHLOROAROMATICS				
OCTACHLOROSTYRENE (NG/L)			DET'N LIMIT = 1.000	GUIDELINE = N/A
33 SAMPLES	BDL	BDL		
PENTACHLOROBENZENE (NG/L)			DET'N LIMIT = 1.000	GUIDELINE = 74000 (D4)
33 SAMPLES	BDL	BDL		
236-TRICHLOROTOLUENE (NG/L)			DET'N LIMIT = 5.000	GUIDELINE = N/A
33 SAMPLES	BDL	BDL		
245-TRICHLOROTOLUENE (NG/L)			DET'N LIMIT = 5.000	GUIDELINE = N/A
33 SAMPLES	BDL	BDL		
26A-TRICHLOROTOLUENE (NG/L)			DET'N LIMIT = 5.000	GUIDELINE = N/A
33 SAMPLES	BDL	BDL		

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
CHLOROPHENOLS		
234-TRICHLOROPHENOL (NG/L)	DET'N LIMIT = 100.00	GUIDELINE = N/A
31 SAMPLES	BDL	BDL
2345-TETCHLOROPHENOL (NG/L)	DET'N LIMIT = 20.000	GUIDELINE = N/A
31 SAMPLES	BDL	BDL
2356-TETCHLOROPHENOL (NG/L)	DET'N LIMIT = 10.000	GUIDELINE = N/A
31 SAMPLES	BDL	BDL
245-TRICHLOROPHENOL (NG/L) (D4)	DET'N LIMIT = 100.00	GUIDELINE = 2600000
31 SAMPLES	BDL	BDL
246-TRICHLOROPHENOL (NG/L)	DET'N LIMIT = 20.000	GUIDELINE = 5000 (A1)
1993 JAN	BDL	BDL
1993 JAN	BDL	.
1993 FEB	BDL	30.000 <T
1993 FEB	30.000 <T	30.000 <T
1993 MAR	20.000 <T	30.000 <T
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 JUL	BDL	20.000 <T
1993 SEP	BDL	30.000 <T
1993 NOV	BDL	BDL
1994 JAN	BDL	!QU
1994 FEB	BDL	BDL
1994 MAR	BDL	BDL
1994 MAY	BDL	BDL
1994 JUN	BDL	BDL
1994 JUL	BDL	BDL

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

CHLOROPHENOLS

PENTACHLOROPHENOL (NG/L) DET'N LIMIT = 10.000 GUIDELINE = 60000 (A1)

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
1993 JAN	30.000 <T	BDL
1993 JAN	10.000 <T	.
1993 FEB	BDL	10.000 <T
1993 FEB	BDL	BDL
1993 MAR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 JUL	BDL	BDL
1993 SEP	BDL	BDL
1993 NOV	BDL	BDL
1994 JAN	!QU	!QU
1994 FEB	BDL	BDL
1994 MAR	BDL	BDL
1994 MAY	BDL	BDL
1994 JUN	BDL	BDL
1994 JUL	BDL	BDL

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
PCB/OC SCAN, PESTCDS		
ALDRIN (NG/L)	DET'N LIMIT = 1.000	GUIDELINE = 700 (A1)
33 SAMPLES	BDL	BDL
ALPHA BHC (NG/L)	DET'N LIMIT = 1.000	GUIDELINE = 700 (G)
1993 JAN	BDL	BDL
1993 JAN	BDL	.
1993 FEB	BDL	BDL
1993 FEB	2.000 <T	2.000 <T
1993 MAR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 JUL	BDL	BDL
1993 SEP	BDL	BDL
1993 NOV	BDL	BDL
1994 JAN	BDL	BDL
1994 FEB	BDL	BDL
1994 MAR	BDL	BDL
1994 MAY	BDL	BDL
1994 JUN	BDL	BDL
1994 JUL	BDL	BDL
BETA BHC (NG/L)	DET'N LIMIT = 1.000	GUIDELINE = 300 (G)
25 SAMPLES	BDL	BDL
LINDANE (GAMMA BHC) (NG/L)	DET'N LIMIT = 1.000	GUIDELINE = 4000 (A1)
1993 JAN	BDL	1.000 <T
1993 JAN	3.000 <T	.
1993 FEB	1.000 <T	1.000 <T
1993 FEB	BDL	BDL
1993 MAR	2.000 <T	3.000 <T
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 JUL	1.000 <T	2.000 <T
1993 SEP	1.000 <T	2.000 <T
1993 NOV	2.000 <T	BDL
1994 JAN	BDL	BDL
1994 FEB	1.000 <T	1.000 <T
1994 MAR	1.000 <T	1.000 <T
1994 MAY	BDL	1.000 <T
1994 JUN	BDL	2.000 <T
1994 JUL	3.000 <T	3.000 <T

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED	
PCB/OC SCAN, PESTCDS			
ALPHA CHLORDANE (NG/L)		DET'N LIMIT = 2.000	GUIDELINE = 7000 (A1)
33 SAMPLES	BDL	BDL	
GAMMA CHLORDANE (NG/L)		DET'N LIMIT = 2.000	GUIDELINE = 7000 (A1)
33 SAMPLES	BDL	BDL	
DIELDRIN (NG/L)		DET'N LIMIT = 2.000	GUIDELINE = 700 (A1)
33 SAMPLES	BDL	BDL	
METHOXYCHLOR (NG/L)		DET'N LIMIT = 5.000	GUIDELINE = 900000 (A1)
33 SAMPLES	BDL	BDL	
ENDOSULFAN 1 (NG/L)		DET'N LIMIT = 2.000	GUIDELINE = 74000 (D4)
33 SAMPLES	BDL	BDL	
ENDOSULFAN II (NG/L)		DET'N LIMIT = 5.000	GUIDELINE = 74000 (D4)
33 SAMPLES	BDL	BDL	
ENDRIN (NG/L)		DET'N LIMIT = 5.000	GUIDELINE = 1600 (D3)
33 SAMPLES	BDL	BDL	
ENDOSULFAN SULPHATE (NG/L)		DET'N LIMIT = 5.000	GUIDELINE = N/A
33 SAMPLES	BDL	BDL	
HEPTACHLOR EPOXIDE (NG/L)		DET'N LIMIT = 1.000	GUIDELINE = 3000 (A1)
33 SAMPLES	BDL	BDL	
HEPTACHLOR (NG/L)		DET'N LIMIT = 1.000	GUIDELINE = 3000 (A1)
33 SAMPLES	BDL	BDL	
MIREX (NG/L)		DET'N LIMIT = 5.000	GUIDELINE = N/A
33 SAMPLES	BDL	BDL	
OXYCHLORDANE (NG/L)		DET'N LIMIT = 2.000	GUIDELINE = N/A
33 SAMPLES	BDL	BDL	

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
PCB/OC SCAN, PESTCDS		
O,P-DDT (NG/L)	DET'N LIMIT = 5.000	GUIDELINE = 30000 (A1)
33 SAMPLES	BDL	BDL
PCB (NG/L)	DET'N LIMIT = 20.000	GUIDELINE = 3000 (A2)
33 SAMPLES	BDL	BDL
P,P-DDD (NG/L)	DET'N LIMIT = 5.000	GUIDELINE = 30000 (A1)
33 SAMPLES	BDL	BDL
P,P-DDE (NG/L)	DET'N LIMIT = 1.000	GUIDELINE = 30000 (A1)
33 SAMPLES	BDL	BDL
P,P-DDT (NG/L)	DET'N LIMIT = 5.000	GUIDELINE = 30000 (A1)
33 SAMPLES	BDL	BDL
TOXAPHENE (NG/L)	DET'N LIMIT = 500.00	GUIDELINE = 5000 (A1)
33 SAMPLES	BDL	BDL
TRIFLURALIN (NG/L)	DET'N LIMIT = 5.000	GUIDELINE = N/A
8 SAMPLES	BDL	BDL
AMETRYNE (NG/L)	DET'N LIMIT = 50.000	GUIDELINE = 300000 (D3)
1993 JAN	BDL	BDL
1993 JAN	BDL	
1993 FEB	BDL	BDL
1993 FEB	BDL	BDL
1993 MAR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 JUL	60.000 <T	BDL
1993 SEP	BDL	BDL
1993 NOV	BDL	BDL
1994 JAN	BDL	BDL
1994 FEB	BDL	BDL
1994 MAR	BDL	BDL
1994 MAY	BDL	BDL
1994 JUN	BDL	BDL
1994 JUL	BDL	BDL

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

PCB/OC SCAN, PESTCDS

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
ATRAZINE (NG/L)	DET'N LIMIT = 50.000	GUIDELINE = 60000 (A2)
1993 JAN	100.000 <T	90.000 <T
1993 JAN	80.000 <T	.
1993 FEB	60.000 <T	60.000 <T
1993 FEB	BDL	BDL
1993 MAR	BDL	BDL
1993 APR	70.000 <T	60.000 <T
1993 APR	110.000 <T	110.000 <T
1993 APR	80.000 <T	BDL
1993 JUL	1640.000	1940.000
1993 SEP	BDL	BDL
1993 NOV	210.000 <T	280.000 <T
1994 JAN	BDL	BDL
1994 FEB	BDL	BDL
1994 MAR	70.000 <T	BDL
1994 MAY	BDL	BDL
1994 JUN	230.000 <T	BDL
1994 JUL	1670.000	370.000 <T
ATRATONE (NG/L)	DET'N LIMIT = 50.000	GUIDELINE = N/A
33 SAMPLES	BDL	BDL
CYANAZINE (BLADEX) (NG/L)	DET'N LIMIT = 100.00	GUIDELINE = 10000 (A2)
1993 JAN	BDL	BDL
1993 JAN	BDL	.
1993 FEB	BDL	BDL
1993 FEB	BDL	BDL
1993 MAR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 JUL	120.000 <T	150.000 <T
1993 SEP	BDL	BDL
1993 NOV	BDL	BDL
1994 JAN	BDL	BDL
1994 FEB	BDL	BDL
1994 MAR	BDL	BDL
1994 MAY	BDL	BDL
1994 JUN	BDL	BDL
1994 JUL	BDL	BDL

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED		
PCB/OC SCAN, PESTCDS				
DESETHYL ATRAZINE (NG/L)			DET'N LIMIT = 200.00	GUIDELINE = 60000 (A2)
1993 JAN	BDL	BDL		
1993 JAN	BDL			
1993 FEB	BDL	BDL		
1993 FEB	BDL	BDL		
1993 MAR	BDL	BDL		
1993 APR	BDL	BDL		
1993 APR	BDL	BDL		
1993 APR	BDL	BDL		
1993 JUL	470.000 <T	380.000 <T		
1993 SEP	BDL	BDL		
1993 NOV	BDL	BDL		
1994 JAN	BDL	BDL		
1994 FEB	BDL	BDL		
1994 MAR	BDL	BDL		
1994 MAY	BDL	BDL		
1994 JUN	BDL	BDL		
1994 JUL	320.000 <T	BDL		
DESETHYL SIMAZINE (NG/L)			DET'N LIMIT = 200.00	GUIDELINE = 10000 (A2)
33 SAMPLES	BDL	BDL		
PROMETONE (NG/L)			DET'N LIMIT = 50.000	GUIDELINE = 52500 (D3)
33 SAMPLES	BDL	BDL		
PROPAZINE (NG/L)			DET'N LIMIT = 50.000	GUIDELINE = 700000 (D3)
33 SAMPLES	BDL	BDL		
PROMETRYNE (NG/L)			DET'N LIMIT = 50.000	GUIDELINE = 1000 (A2)
33 SAMPLES	BDL	BDL		
METRIBUZIN (SENCOR) (NG/L)			DET'N LIMIT = 100.00	GUIDELINE = 80000 (A1)
31 SAMPLES	BDL	BDL		
SIMAZINE (NG/L)			DET'N LIMIT = 50.000	GUIDELINE = 10000 (A2)
33 SAMPLES	BDL	BDL		
ALACHLOR (LASSO) (NG/L)			DET'N LIMIT = 500.00	GUIDELINE = 5000 (A2)
33 SAMPLES	BDL	BDL		

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED		
PCB/OC SCAN, PESTCDS				
METOLACHLOR (NG/L)			DET'N LIMIT = 500.00	GUIDELINE = 50000 (A2)
33 SAMPLES	BDL	BDL		

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
PHENOLICS		
PHENOLICS (UG/L)	DET'N LIMIT = .200	GUIDELINE = N/A
1993 JAN	.600 <T	BDL
1993 JAN	BDL	.
1993 FEB	.600 <T	.600 <T
1993 FEB	1.000 <T	.400 <T
1993 MAR	BDL	.400 <T
1993 APR	.400 <T	.800 <T
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 JUL	.600 <T	.600 <T
1993 SEP	.600 <T	BDL
1993 NOV	BDL	BDL
1994 JAN	.200 <T	.200 <T
1994 FEB	.200 <T	BDL
1994 MAR	.400 <T	BDL
1994 MAY	.600 <T	.400 <T
1994 JUN	.600 <T	.400 <T
1994 JUL	BDL	BDL

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED	
SPECIFIC PESTICIDES			
2,4,5-T (NG/L)		DET'N LIMIT = 50.000	GUIDELINE = 280000 (A1)
30 SAMPLES	BDL	BDL	
2,4-D (NG/L)		DET'N LIMIT = 100.00	GUIDELINE = 100000 (A1)
1993 JAN	BDL	BDL	
1993 JAN	BDL	.	
1993 FEB	BDL	BDL	
1993 FEB	BDL	BDL	
1993 MAR	BDL	BDL	
1993 APR	BDL	BDL	
1993 APR	BDL	BDL	
1993 APR	BDL	BDL	
1993 JUL	BDL	BDL	
1993 SEP	BDL	BDL	
1993 NOV	BDL	BDL	
1994 JAN	!QU	!QU	
1994 FEB	BDL	BDL	
1994 MAR	BDL	BDL	
1994 MAY	BDL	BDL	
1994 JUN	BDL	BDL	
1994 JUL	160.000 <T	BDL	
2,4-DB (NG/L)		DET'N LIMIT = 200.00	GUIDELINE = N/A
30 SAMPLES	BDL	BDL	
2,4 D PROPIONIC ACID (NG/L)		DET'N LIMIT = 100.00	GUIDELINE = N/A
30 SAMPLES	BDL	BDL	
DICAMBA (NG/L)		DET'N LIMIT = 50.000	GUIDELINE = 120000 (A1)
1993 JAN	BDL	BDL	
1993 JAN	BDL	.	
1993 FEB	BDL	BDL	
1993 FEB	BDL	BDL	
1993 MAR	BDL	BDL	
1993 APR	BDL	BDL	
1993 APR	BDL	BDL	
1993 APR	BDL	BDL	
1993 JUL	170.000 <T	190.000 <T	
1993 SEP	BDL	BDL	
1993 NOV	BDL	BDL	
1994 JAN	!QU	!QU	
1994 FEB	BDL	BDL	
1994 MAR	BDL	BDL	
1994 MAY	BDL	BDL	
1994 JUN	BDL	BDL	
1994 JUL	660.000 CMS	150.000 <T	

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED	
SPECIFIC PESTICIDES			
2,4,5-TP (SILVEX) (NG/L)	DET'N LIMIT = 20.000		GUIDELINE = 10000 (A1)
30 SAMPLES	BDL	BDL	
DIAZINON (NG/L)	DET'N LIMIT = 20.000		GUIDELINE = 20000 (A1)
17 SAMPLES	BDL	BDL	
DICHLOROVOS (NG/L)	DET'N LIMIT = 20.000		GUIDELINE = N/A
17 SAMPLES	BDL	BDL	
CHLORPYRIFOS (NG/L)	DET'N LIMIT = 20.000		GUIDELINE = N/A
17 SAMPLES	BDL	BDL	
ETHION (NG/L)	DET'N LIMIT = 20.000		GUIDELINE = 35000 (G)
17 SAMPLES	BDL	BDL	
MALATHION (NG/L)	DET'N LIMIT = 20.000		GUIDELINE = 190000 (A1)
17 SAMPLES	BDL	BDL	
MEVINPHOS (NG/L)	DET'N LIMIT = 20.000		GUIDELINE = N/A
17 SAMPLES	BDL	BDL	
METHYL PARATHION (NG/L)	DET'N LIMIT = 50.000		GUIDELINE = 9000 (D3)
17 SAMPLES	BDL	BDL	
METHYLTRITHION (NG/L)	DET'N LIMIT = 20.000		GUIDELINE = N/A
17 SAMPLES	BDL	BDL	
PARATHION (NG/L)	DET'N LIMIT = 20.000		GUIDELINE = 50000 (A1)
17 SAMPLES	BDL	BDL	
PHORATE (NG/L)	DET'N LIMIT = 20.000		GUIDELINE = 2000 (A2)
17 SAMPLES	BDL	BDL	
RELDAN (NG/L)	DET'N LIMIT = 20.000		GUIDELINE = N/A
17 SAMPLES	BDL	BDL	

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED	
SPECIFIC PESTICIDES			
RONNEL (NG/L)	DET'N LIMIT = 20.000	GUIDELINE = N/A	
17 SAMPLES	BDL	BDL	
CARBOFURAN (NG/L)	DET'N LIMIT = 2000.0	GUIDELINE = 90000 (A1)	
17 SAMPLES	BDL	BDL	
CHLOROPROPHAM(CIPC) (NG/L)	DET'N LIMIT = 2000.0	GUIDELINE = 350000 (G)	
17 SAMPLES	BDL	BDL	
DIALLATE (NG/L)	DET'N LIMIT = 2000.0	GUIDELINE = N/A	
17 SAMPLES	BDL	BDL	
EPTAM (NG/L)	DET'N LIMIT = 2000.0	GUIDELINE = N/A	
15 SAMPLES	BDL	BDL	
IPC (NG/L)	DET'N LIMIT = 2000.0	GUIDELINE = N/A	
17 SAMPLES	BDL	BDL	
PROPOXUR (NG/L)	DET'N LIMIT = 2000.0	GUIDELINE = 140000 (D3)	
17 SAMPLES	BDL	BDL	
CARBARYL (NG/L)	DET'N LIMIT = 200.00	GUIDELINE = 90000 (A1)	
17 SAMPLES	BDL	BDL	
BUTYLATE (NG/L)	DET'N LIMIT = 2000.0	GUIDELINE = 245000 (D3)	
17 SAMPLES	BDL	BDL	

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
VOLATILES		
BENZENE (UG/L)	DET'N LIMIT = .050	GUIDELINE = 5 (A1)
1993 JAN	BDL	BDL
1993 JAN	BDL	.
1993 FEB	BDL	BDL
1993 FEB	BDL	BDL
1993 MAR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	BDL	.050 <T
1993 APR	BDL	BDL
1993 JUL	BDL	BDL
1993 SEP	BDL	BDL
1993 NOV	BDL	BDL
1994 JAN	BDL	BDL
1994 FEB	BDL	BDL
1994 MAR	BDL	BDL
1994 MAY	BDL	BDL
1994 JUN	BDL	.050 <T
1994 JUL	BDL	BDL
TOLUENE (UG/L)	DET'N LIMIT = .050	GUIDELINE = 24 (A3)
1993 JAN	BDL	.100 <T
1993 JAN	BDL	.
1993 FEB	BDL	.100 <T
1993 FEB	.050 <T	.050 <T
1993 MAR	.050 <T	.050 <T
1993 APR	BDL	.050 <T
1993 APR	BDL	.050 <T
1993 APR	BDL	.050 <T
1993 JUL	.100 <T	.150 <T
1993 SEP	BDL	.150 <T
1993 NOV	BDL	.050 <T
1994 JAN	.050 <T	.100 <T
1994 FEB	BDL	.100 <T
1994 MAR	BDL	.050 <T
1994 MAY	BDL	BDL
1994 JUN	BDL	.100 <T
1994 JUL	BDL	.050 <T

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
VOLATILES		
ETHYLBENZENE (UG/L)	DET'N LIMIT = .050	GUIDELINE = 2.4 (A3)
1993 JAN	BDL	BDL
1993 JAN	BDL	.
1993 FEB	.050 <T	.050 <T
1993 FEB	BDL	BDL
1993 MAR	BDL	BDL
1993 APR	BDL	.050 <T
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 JUL	.100 <T	.100 <T
1993 SEP	BDL	BDL
1993 NOV	BDL	BDL
1994 JAN	BDL	BDL
1994 FEB	BDL	.100 <T
1994 MAR	BDL	BDL
1994 MAY	BDL	BDL
1994 JUN	BDL	BDL
1994 JUL	BDL	BDL
P-XYLENE (UG/L)	DET'N LIMIT = .050	GUIDELINE = 300 (A3*)
33 SAMPLES	BDL	BDL
M-XYLENE (UG/L)	DET'N LIMIT = .050	GUIDELINE = 300 (A3*)
1993 JAN	BDL	BDL
1993 JAN	BDL	.
1993 FEB	BDL	BDL
1993 FEB	BDL	BDL
1993 MAR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 JUL	BDL	.100 <T
1993 SEP	BDL	.100 <T
1993 NOV	BDL	BDL
1994 JAN	BDL	BDL
1994 FEB	.050 <T	.050 <T
1994 MAR	BDL	BDL
1994 MAY	BDL	BDL
1994 JUN	BDL	BDL
1994 JUL	BDL	BDL

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
VOLATILES		
O-XYLENE (UG/L)	DET'N LIMIT = .050	GUIDELINE = 300 (A3*)
1993 JAN	BDL	BDL
1993 JAN	BDL	.
1993 FEB	BDL	BDL
1993 FEB	BDL	BDL
1993 MAR	BDL	.050 <T
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 JUL	BDL	.050 <T
1993 SEP	BDL	BDL
1993 NOV	BDL	BDL
1994 JAN	BDL	BDL
1994 FEB	BDL	BDL
1994 MAR	BDL	BDL
1994 MAY	BDL	BDL
1994 JUN	BDL	BDL
1994 JUL	BDL	BDL
STYRENE (UG/L)	DET'N LIMIT = .050	GUIDELINE = 100 (D1)
1993 JAN	BDL	BDL
1993 JAN	BDL	.
1993 FEB	.100 <T	.050 <T
1993 FEB	.050 <T	BDL
1993 MAR	.050 <T	BDL
1993 APR	BDL	.100 <T
1993 APR	.050 <T	BDL
1993 APR	BDL	BDL
1993 JUL	.100 <T	.150 <T
1993 SEP	BDL	BDL
1993 NOV	BDL	BDL
1994 JAN	BDL	BDL
1994 FEB	BDL	.100 <T
1994 MAR	BDL	BDL
1994 MAY	BDL	BDL
1994 JUN	BDL	BDL
1994 JUL	BDL	BDL
1,1-DICHLOROETHYLENE (UG/L)	DET'N LIMIT = .050	GUIDELINE = 7 (D1)
33 SAMPLES	BDL	BDL

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED	
VOLATILES			
METHYLENE CHLORIDE (UG/L)		DET'N LIMIT = .500	GUIDELINE = 50 (A1)
1993 JAN	BDL	1.000 <T	
1993 JAN	BDL	.	
1993 FEB	BDL	BDL	
1993 FEB	BDL	BDL	
1993 MAR	BDL	BDL	
1993 APR	BDL	BDL	
1993 APR	BDL	BDL	
1993 APR	BDL	BDL	
1993 JUL	BDL	BDL	
1993 SEP	BDL	BDL	
1993 NOV	BDL	BDL	
1994 JAN	BDL	BDL	
1994 FEB	BDL	BDL	
1994 MAR	BDL	BDL	
1994 MAY	BDL	BDL	
1994 JUN	BDL	BDL	
1994 JUL	BDL	BDL	
T12-DICHLOROETHYLENE (UG/L)		DET'N LIMIT = .050	GUIDELINE = 70 (D1)
1993 JAN	BDL	BDL	
1993 JAN	BDL	.	
1993 FEB	BDL	BDL	
1993 FEB	BDL	BDL	
1993 MAR	BDL	BDL	
1993 APR	BDL	BDL	
1993 APR	BDL	BDL	
1993 APR	BDL	BDL	
1993 JUL	BDL	BDL	
1993 SEP	BDL	BDL	
1993 NOV	BDL	BDL	
1994 JAN	BDL	BDL	
1994 FEB	BDL	BDL	
1994 MAR	BDL	BDL	
1994 MAY	BDL	BDL	
1994 JUN	BDL	.050 <T	
1994 JUL	BDL	BDL	
1,1-DICHLOROETHANE (UG/L)		DET'N LIMIT = .050	GUIDELINE = N/A
33 SAMPLES	BDL	BDL	

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
VOLATILES		
CHLOROFORM (UG/L)	DET'N LIMIT = .100	GUIDELINE = 350 (A1+)
1993 JAN	BDL	6.400
1993 JAN	BDL	.
1993 FEB	.100 <T	1.700
1993 FEB	.200 <T	.800 <T
1993 MAR	.100 <T	1.900
1993 APR	BDL	.400 <T
1993 APR	BDL	.100 <T
1993 APR	BDL	.200 <T
1993 JUL	.300 <T	44.300
1993 SEP	.500 <T	9.000
1993 NOV	.600 <T	76.000
1994 JAN	.200 <T	.400 <T
1994 FEB	.300 <T	1.400
1994 MAR	.700 <T	11.200
1994 MAY	2.000	91.900
1994 JUN	3.000	62.100
1994 JUL	1.800	38.700
111,TRICHLOROETHANE (UG/L)	DET'N LIMIT = .050	GUIDELINE = 200 (D1)
1993 JAN	BDL	BDL
1993 JAN	BDL	.
1993 FEB	.040 <T	.060 <T
1993 FEB	BDL	BDL
1993 MAR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 JUL	BDL	BDL
1993 SEP	BDL	BDL
1993 NOV	BDL	BDL
1994 JAN	BDL	BDL
1994 FEB	BDL	BDL
1994 MAR	BDL	BDL
1994 MAY	BDL	BDL
1994 JUN	BDL	BDL
1994 JUL	BDL	BDL
1,2-DICHLOROETHANE (UG/L)	DET'N LIMIT = .100	GUIDELINE = 5 (A1)
33 SAMPLES	BDL	BDL
CARBON TETRACHLORIDE (UG/L)	DET'N LIMIT = .200	GUIDELINE = 5 (A1)
33 SAMPLES	BDL	BDL

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED
VOLATILES		
1,2-DICHLOROPROPANE (UG/L)	DET'N LIMIT = .050	GUIDELINE = 5 (D1)
33 SAMPLES	BDL	BDL
TRICHLOROETHYLENE (UG/L)	DET'N LIMIT = .050	GUIDELINE = 50 (A1)
33 SAMPLES	BDL	BDL
DICHLOROBROMOMETHANE (UG/L) (A1+)	DET'N LIMIT = .200	GUIDELINE = 350
1993 JAN	BDL	1.650
1993 JAN	BDL	.
1993 FEB	BDL	.900
1993 FEB	BDL	.300 <T
1993 MAR	BDL	.800
1993 APR	BDL	.150 <T
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 JUL	BDL	14.550
1993 SEP	BDL	4.800
1993 NOV	BDL	21.000
1994 JAN	BDL	BDL
1994 FEB	BDL	.400 <T
1994 MAR	BDL	3.000
1994 MAY	BDL	12.000
1994 JUN	.600 <T	16.000
1994 JUL	.400 <T	8.400
112-TRICHLOROETHANE (UG/L)	DET'N LIMIT = .100	GUIDELINE = 0.6 (D4)
33 SAMPLES	BDL	BDL
CHLORODIBROMOMETHANE (UG/L) (A1+)	DET'N LIMIT = .200	GUIDELINE = 350
1993 JAN	BDL	BDL
1993 JAN	BDL	.
1993 FEB	BDL	BDL
1993 FEB	BDL	BDL
1993 MAR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 APR	BDL	BDL
1993 JUL	BDL	2.900
1993 SEP	BDL	1.200 <T
1993 NOV	BDL	2.800
1994 JAN	BDL	BDL
1994 FEB	BDL	BDL
1994 MAR	BDL	BDL
1994 MAY	BDL	.800 <T
1994 JUN	BDL	1.800 <T
1994 JUL	BDL	.800 <T

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED		
VOLATILES				
TETRACHLOROETHYLENE (UG/L)			DET'N LIMIT = .050	GUIDELINE = 65 (A5)
1993 JAN	BDL	BDL		
1993 JAN	BDL			
1993 FEB	BDL	BDL		
1993 FEB	BDL	BDL		
1993 MAR	BDL	BDL		
1993 APR	BDL	BDL		
1993 APR	BDL	BDL		
1993 APR	BDL	BDL		
1993 JUL	BDL	.100 <T		
1993 SEP	BDL	BDL		
1993 NOV	BDL	BDL		
1994 JAN	BDL	BDL		
1994 FEB	BDL	BDL		
1994 MAR	BDL	BDL		
1994 MAY	BDL	BDL		
1994 JUN	BDL	BDL		
1994 JUL	BDL	BDL		
BROMOFORM (UG/L)			DET'N LIMIT = .500	GUIDELINE = 350 (A1+)
33 SAMPLES	BDL	BDL		
1122-TETCHLOROETHANE (UG/L)			DET'N LIMIT = .100	GUIDELINE = 0.17 (D4)
33 SAMPLES	BDL	BDL		
VINYL CHLORIDE (UG/L)			DET'N LIMIT = .050	GUIDELINE = N/A
33 SAMPLES	BDL	BDL		
C12-DICHLOROETHYLENE (UG/L)			DET'N LIMIT = .050	GUIDELINE = N/A
33 SAMPLES	BDL	BDL		
CHLOROBENZENE (UG/L)			DET'N LIMIT = .050	GUIDELINE = 1510 (D3)
33 SAMPLES	BDL	BDL		
1,4-DICHLOROBENZENE (UG/L)			DET'N LIMIT = .050	GUIDELINE = 5 (A1)
33 SAMPLES	BDL	BDL		
1,3-DICHLOROBENZENE (UG/L)			DET'N LIMIT = .050	GUIDELINE = 3750 (D3)
33 SAMPLES	BDL	BDL		

TABLE A2
DRINKING WATER SURVEILLANCE PROGRAM 1993 AND 1994 OHSWEKEN WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED		
VOLATILES				
1,2-DICHLOROBENZENE (UG/L)			DET'N LIMIT = .050	GUIDELINE = 200 (A1)
33 SAMPLES	BDL	BDL		
ETHLYENE DIBROMIDE (UG/L)			DET'N LIMIT = .100	GUIDELINE = 50 (D1)
33 SAMPLES	BDL	BDL		
TOTL TRIHALOMETHANES (UG/L)			DET'N LIMIT = .500	GUIDELINE = 350 (A1)
1993 JAN	BDL	8.050		
1993 JAN	BDL	.		
1993 FEB	BDL	2.600 <T		
1993 FEB	BDL	1.100 <T		
1993 MAR	BDL	2.700 <T		
1993 APR	BDL	.550 <T		
1993 APR	BDL	BDL		
1993 APR	BDL	BDL		
1993 JUL	BDL	61.750		
1993 SEP	.500 <T	15.000		
1993 NOV	.600 <T	99.800		
1994 JAN	BDL	BDL		
1994 FEB	BDL	1.800 <T		
1994 MAR	.700 <T	14.200		
1994 MAY	2.000 <T	104.700		
1994 JUN	3.600 <T	79.900		
1994 JUL	2.200 <T	47.900		